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THE IMPLICATIONS OF COST-EFFECTIVENESS ANALYSIS OF MEDICAL TECHNOLOGY

OCTOBER 1980

BACKGROUND PAPER #3: THE EFFICACY AND COST EFFECTIVENESS OF PSYCHOTHERAPY

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Foreword

This volume is a background paper for OTA's assessment, *The Implications of Cost-Effectiveness Analysis of Medical Technology*. That assessment analyzes the feasibility, implications, and usefulness of applying cost-effectiveness and cost-benefit analysis (CEA/CBA) in health care decisionmaking. The major, policy-oriented report of the assessment was published in August 1980. In addition to the main report and this background report, there will be four other background papers: 1) a document which addresses methodological issues and reviews the CEA/CBA literature, 2) a diagnostic X-ray case study, 3) 17 other case studies of individual medical technologies, and 4) a review of international experience in managing medical technology. Another related report was published in September of 1979: *A Review of Selected Federal Vaccine and Immunization Policies*.

Background Paper #3: The Efficacy and Cost Effectiveness of Psychotherapy was prepared in response to a request of the Senate Finance Committee. OTA established a special advisory panel to assist in the development of this paper; in addition, OTA consulted with the members of the advisory panel to the overall assessment and with a group of ad hoc reviewers from various mental health fields. We are grateful for their assistance.

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1.
Summary

1. Summary

The treatment of mental, emotional, and behavioral dysfunctions has become one of the most controversial areas of health policy. Even though the prevalence and the pernicious effects of mental disorders are well known and have been documented recently in sources such as the report of the President's Commission on Mental Health (219), opinion about what should be done to treat these problems is not unanimous. A number of proposals to expand the mental health services system and to make treatment more widely available (e.g., through expanded insurance coverage) have been made. Yet, there is not agreement about how to expand mental health services, nor about what would be gained by their expansion.

In light of these disagreements, it is perhaps understandable that policymakers have been reluctant to commit additional public resources to mental health treatments. To make psychotherapeutic treatments more widely available is potentially expensive. It has been suggested, however, that the provision of psychotherapy reduces other costs currently borne by society. A central question is the extent to which psychotherapy can be scientifically assessed and its value demonstrated in a way useful for policymaking. The present report analyzes the current scientific literature on the evaluation of psychotherapy. It examines the efficacy and cost effectiveness of psychotherapeutic treatments and considers both the methodological problems of assessing psychotherapy and the state of current knowledge about its effects. It is hoped that this report will inform the developing congressional debate on Federal research and funding for psychotherapy.

As a background paper prepared in conjunction with OTA's assessment *The Implications of Cost-Effectiveness Analysis of Medical Technology* (see 203), the present report emphasizes methodological issues related to the assessment of psychotherapy and the use of cost-effectiveness/cost-benefit analysis (CEA/CBA) to evaluate psychotherapy's worth. It documents the use of various evaluation strategies and considers the available evidence concerning psychotherapy's efficacy and cost effectiveness. The conclusions of the report relate both to the conduct of research on psychotherapy and the status of present scientific knowledge about psychotherapy.

The report discusses four issues centrally related to the evaluation of psychotherapy: 1) the definition and complexity of psychotherapy; 2) the degree to which psychotherapy is amenable to scientific analysis and the availability of appropriate methods for studying psychotherapy; 3) the evidence as to psychotherapy's efficacy, including the results of analyses that synthesize findings across studies; and 4) the appropriateness of CEA/CBAs of psychotherapy and the results of their application. Below, each of these sections of the report is briefly summarized.

Chapter 2 reviews a number of definitions and views of psychotherapy. It also attempts to delimit the scope of this background paper. Psychotherapy is not a simple treatment, and part of the confusion about its effectiveness has to do with the use of different views of what comprises psychotherapy. In order to represent the variety of contemporary therapy practices, the present report adopts a relatively comprehensive definition of psychotherapy. Included are treatments based on Freudian ideas about psychodynamics, as well as newer therapies based on behavioral theories of learning and cognition. One finding of the report is that psychotherapies are not distinguishable solely by their theoretical bases. In addition to the view of psychopathology adopted by the therapist, therapist variables (e.g., training and personality characteristics), patient variables (e.g., seriousness of condition), and the treatment setting (e.g., hospital, private office) affect the nature of psychotherapy treatments. Although the inclusion of such complex factors makes the analysis of psychotherapy more difficult, their inclusion is necessary to adequately assess the effects of psychotherapy.

Chapter 3 describes the scientific basis of efforts to assess the effectiveness of psychotherapy. Although the definition of psychotherapy employed in this report is complex, and perhaps open to dispute, the methods for assessing psychotherapy are better established. The present report describes and analyzes various methodological strategies for measuring the outcomes of psychotherapeutic treatment and the ways in which the reliability and validity of these measures are established. It also describes the variety of research design strategies that have been used to establish cause-effect relationships between psychotherapy and particular outcomes. The discussion indicates the conditions under which randomized control group procedures can be used to assess psychotherapy. Also analyzed are the use of quasi-experimental and nonexperimental procedures which, depending on what types of information are required, may provide useful data. The problems of carrying out psychotherapy research are also discussed, including the difficulties of withholding treatment from members of a control group and the problems of assessing multifactor treatment programs.

Also considered in chapter 3 are two recent methodological developments. One is the conduct of program evaluation studies, in which sets of psychotherapy variables are investigated simultaneously. Such evaluation studies may be useful where several psychotherapy-related variables are considered in conjunction with one another and where it is difficult to separate treatment components. Another recent methodological development is the use of systematic procedures for synthesizing the findings of multiple investigations. These data integration methods are new and somewhat controversial procedures for assessing the implications of the psychotherapy research literature. Both of these methods, along with scientifically rigorous studies of psychotherapy, may prove useful to developing mental health policy.

Chapter 4 selectively describes the substantive literature on psychotherapy's effects. A number of prominent reviews of the psychotherapy literature, and the commentary generated by these reviews, are analyzed (along with several individual evaluative studies). Despite some fundamental differences, both in the criteria for assessing psychotherapy and in the studies included, the reviews all report—under specified conditions—evidence for psychotherapy's effectiveness. This finding is stronger the more recent the literature that is reviewed. In fact, there seems to be litle negative evidence as to the efficacy of psychotherapeutic treatments. Although it is difficult to make global statements, the evidence seems more supportive of psychotherapy than of alternative explanations (e.g., spontaneous remission, placebo effects). The available research, some of which meets rigorous methodological standards, seems to indicate that psychotherapy treatment is clearly better than no treatment. However, while the literature supports a generally positive conclusion with respect to the effectiveness of psychotherapy, there is a lack of specific information about the conditions under which psychotherapy is effective. It is not clear which aspects of therapy (e.g., treatment protocol v. the nature of the therapist's relationship with the patient) are responsible for particular outcomes.

Methods for assessing the costs and benefits of psychotherapy and for developing CBAs are described in chapter 5. The application of CEA/CBA to psychotherapy is much more recent, and less developed, than efficacy research. Although the methods for CEA/CBAs of psychotherapy are based on applications of such analyses to other types of health and nonhealth problems, in some instances (e.g., application of the "willingness-to-pay" concept), the translation to psychotherapy is difficult. An additional problem with psychotherapy assessments has to do with the comprehensiveness of cost and benefit assessment—in particular, our ability to value in pecuniary terms the effects of psychotherapy. Because of this difficulty, much of the recent cost analysis research has involved cost-effectiveness comparisons rather than cost-benefit comparisons. Potentially, however, both CEA and CBA techniques may be useful to improve our understanding of the effects of psychotherapy and the resources necessary for its efficient use. Such CEA/CBA research may be an important adjunct to effectiveness studies that will enhance their policy use.

Chapter 6 reviews the available literature on the use of CEA/CBA for asessing psychotherapy. The literature which reports actual CEA/CBA studies varies, both in terms of its focus on different problems and its methodological adequacy. Because of the problem of valuing psychotherapy outcomes, a great number of the available cost studies focus on low-cost treatments. This may create an incorrect impression about psychotherapy's effects. In terms of their limitation of problem focus, many of these analyses have been conducted on treatment settings characteristics (e.g., institutional v. noninstitutional care), rather than on different therapies or therapists. The findings of these studies seem to indicate that more efficient ways of delivering psychotherapy can be developed. Unfortunately, it is difficult to interpret the results of many of these studies, because they ignore important costs or benefits or because they use inadequate research designs. In some cases (e.g., the effects of psychotherapy on medical utilization rates), at least the potential for psychotherapy to provide society with large net benefits has been demonstrated. It will be necessary, however, to validate these findings using better procedures and a wide range of mental health problems.

In summary, OTA finds that psychotherapy is a complex—yet scientifically assessable—set of technologies. It also finds good evidence of psychotherapy's positive effects. Although this evidence may not be generalizable to the wide range of problems for which therapy is employed, it suggests that additional research may provide data useful for the development of mental health policy. Given the potential net benefits of psychotherapy, this effort would seem to be justified.

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Definitions and Scope of Review

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2.
Definitions and Scope of Review

The term psychotherapy has been used to refer to a wide variety of treatments employed to ameliorate mental distress, mental illness, and problems of coping with daily life. Psychotherapy is a global term, and one commentator has found at least 40 different definitions in the scientific literature (300). The definitions range from broad and inclusive descriptions of various ways of helping other individuals to more limiting definitions which are very specific as to the nature of the problem and treatment (see, e.g., 118). Differences in the definitions used by those who discuss psychotherapy are a likely reason that discussions of psychotherapy have been so difficult to understand and evaluate. The present review attempts to specify the nature of psychotherapy, so as to avoid some of these problems.

To illustrate some of the difficulties of different views of psychotherapy, consider a broad definition such as "the treatment of emotional and personality problems and disorders by psychological means" (144). This definition refers to treatments that may have either a good or poor scientific basis, as well as to treatments that are delivered by either professionally trained or untrained personnel. In contrast, a more specific definition (which has been favored by some researchers) describes psychotherapy in terms of its techniques, the qualifications of the therapist, and nature of the patient's problem (181):

> Psychotherapy is taken to mean the planful application of techniques derived from established psychological principles, by persons qualified through training and experience to understand these principles and to apply these techniques with the intention of assisting individuals to modify such personal characteristics as feelings, values, attitudes, and behaviors which are judged by the therapist to be maladaptive or maladjustive.

Apart from their level of specificity, definitions vary with regard to what is included as the disorders to be treated by psychotherapy. Although some definitions, like the above, are not specific as to the nature of the disorder (see, e.g., 84), diagnosis is becoming more systematic; viz, the newly developed *Diagnostic and Statistical Manual of Mental Disorders* (63). The new diagnostic manual includes disorders that range from organic brain syndromes, schizophrenic and paranoid disorders, to affective disorders such as depression, anxiety, and disorders such as phobias or posttraumatic stress; also included are behavior aberrations such as kleptomania or pathological gambling, personality disorders, alcohol- and drug-related problems, and interpersonal difficulties such as marital or family disturbances or education and work blockages.

One additional feature of the various approaches to defining psychotherapy is that definitions vary in terms of their underlying theoretical assumptions. These assumptions lead to differences in defining the goal of psychotherapy, the basic techniques, and the role of the patient and therapist. As Hogan (118) has noted, psychotherapy can refer to a wide variety of vaguely defined processes. Attempts to specify the nature of psychotherapy result, in part, in definitions that vary in terms of the practitioners and settings which are included as acceptable. Different definitions require different levels of professional training and experience for psychotherapy practitioners. For example, medical definitions of psychotherapy (see 163) may limit primary responsibility for psychotherapy treatment to physicians, while nonmedical models (e.g., 250) may suggest central roles for psychologists, social workers, and nurses, as well as educational and pastoral counselors. The various forms of psychotherapy are further affected by the variety of settings in which therapy takes place (e.g., psychiatric hospitals, outpatient clinics, private offices) and the variety of modalities that are offered (e.g., individual, family, or group counseling).

In order to adequately summarize psychotherapy research and practice, it is necessary to

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reflect components of a number of definitions of psychotherapy. In this report, the definition of psychotherapy is limited only in the sense that an effort is made to view psychotherapy as a field that is both scientific and professional. Thus, our definition will emphasize therapies that have an established scientific base and that are delivered by trained professionals. In addition, although it seems unnecessary (as well as difficult) to differentiate between levels of psychopathology, this report is most concerned with those disorders that cause severe dysfunction. Although psychotherapy may be useful in aiding individuals' adjustment and improving the quality of life, the primary concern here is with problems that require some form of outside intervention.

The following section briefly describes the scope of psychotherapy practice, in terms of the definitional variables described above. It is hoped that this review will orient readers to the central features of psychotherapy and will identify the central factors that must be accounted for in an assessment of psychotherapy.

THEORETICAL ASSUMPTIONS

When discussing psychotherapy, one typically refers to differences between treatments based on different underlying theoretical assumptions. There is a wide variety of beliefs about people and pathology, and this has resulted in the development of a number of different psychotherapeutic treatments. The variety of psychotherapeutic treatments, at least in terms of the number of labels used to describe psychotherapies, is somewhat bewildering. Nevertheless, many treatments have similar origins, and it is possible to examine the range of therapies by considering only a few major theoretical perspectives. For present purposes, therapies based on psychodynamic, humanistic/phenomenological, and behavioral theories are discussed as the perspectives that underlie most current practice. These theoretical perspectives do not exist in pure form, but they illustrate the most important differences between treatment approaches (see 259).

Psychodynamic.—The psychodynamic perspective, which grew out of the classical psychoanalytic theory of Freud (88), is the oldest and the most complex of the three orientations. Although psychoanalytic theory cannot be described here in detail, the role of unconscious motivation, one aspect of Freud's theory, can provide a basis for understanding the nature of psychodynamic (also called analytic) treatments. The importance of unconscious motivation is central to all of Freud's psychological interpretations. The driving forces of an individual's life are seen as originating in some inner system of which he or she might, at the most, be only vaguely aware. Most of the unconscious cannot be called into conscious awareness; any move in this direction meets with resistance, or censorship.

According to Freud's theory, some unconscious impulses come into conflict with environmental constraints and moral prohibitions. To keep such threatening impulses from coming into consciousness, part of the normal energy of mental life is used to provide a constant defense, or resistance, against the acceptance of such impulses. These impulses, however, are not eliminated by such a defensive reaction; instead, they express themselves in indirect ways, leading to behavior that the individual is sometimes unable to explain. Neurosis occurs when such behavior is especially prominent in the life of an individual.

Thus, the goal of analytic psychotherapy is gradually to promote the patient's insight into his or her underlying motivations and conflicts by repeatedly working through the patient's intellectual and emotional defensive resistances. Acquisition of insight, along with affective understanding, is presumed to be a sufficient and necessary condition for restructuring significant aspects of the patient's personality and for promoting the development of more adaptive behaviors in real life.

The methods that use therapies based on the psychodynamic approach are intended to aid the patient in bringing unconscious material to awareness. The core of therapy lies in transference. Freud suggested that patients inevitably project into the therapeutic situation feelings and attitudes from their past, and that they sometimes reenact with the therapist important situations and traumatic experiences repressed since childhood. By becoming aware of these unresolved conflicts, patients can master them and liberate their energy to develop a mature personality. Therapeutic techniques are designed so as to encourage and to analyze this process of transference.

In Freudian psychotherapy, the therapist also makes timely interpretations of the patient's free associations and dreams and deals with the patient's resistances to the content of this unconscious material. Psychoanalytic therapy has provided the model for most "verbal" therapies (i.e., therapies based on conversations between therapist and patient). Although infrequently practiced in pure form, in part because many of Freud's students (e.g., Adler, Jung) developed their own forms of therapy, psychoanalytic theory has had a major influence on other types of psychotherapeutic treatments.

Humanistic/Phenomenological.—The second major orientation that has influenced present day treatment can be called the humanistic/phenomenological perspective. The approach is humanistic because it posits that the basic aim of the individual is the achievement of personal growth. Personal growth is variously conceived of as self-actualization (e.g., 234,235,236), meaning in life (e.g., 87), and cognitive complexity (e.g., 137). The perspective is also called phenomenological because it holds that the central focus of treatment should be an individual's "phenomenal field." Thus, a person's perceptions about himself or herself and the world (rather than unconscious thoughts) are believed to be central to understanding. The theory further posits that each person has a fundamental urge to preserve his or her self-concept (i.e., perceptions about self).

This theoretical approach, like psychoanalytic theory, has influenced how psychotherapy is practiced by a variety of different therapists. A major form of therapy based on this perspective is "client-centered" or "nondirective" psychotherapy. This therapy is grounded in the early theoretical work of Rogers (234; see also 235, 236). According to Rogers, when individuals have needs, impulses, or experiences that are not consistent with their self-concept, tension and anxiety result. More severe problems result when individuals react with defensive mechanisms to avoid awareness of their contradictory responses by ignoring important responses or by distorting their thinking about them. The role of the therapist, according to Rogers, is to be an empathetic responder.

A central tenet of client-centered therapy is the belief that each individual has the resources for growth. These resources merely need to be released for the person to resolve a problem and achieve maturity. Thus, therapy facilitates the patient's growth by promoting the free expression of feelings and by refraining from imposing patterns and values. Out of the therapeutic relationship, patients (almost always referred to as clients) evolve a new conceptualization of the self. This view of themselves is more tolerant, especially of their failings, and it resolves the differences between their ideal image and their actual perception of themselves. As a result, anxiety and dysfunctional tendencies are lessened, and there is greater objectivity in the handling of reality. The new self-image should also be accompanied by a more harmonious expression of attitudes and feelings.

Therapists' efforts to interpret, evaluate, or guide the individual (which are central to analytic therapy) are felt by humanistic therapists to hamper patients' emerging sense of self-growth and self-direction. Techniques commonly employed in client-centered therapy are intended to facilitate individuals who seek help in achieving their own insight. These techniques include attentive listening to clients' communications for content and feeling, reflecting or verbally focusing clients' feelings, and encouraging clients in their efforts to manage their own problems.

Behavioral.—The third major orientation is the behavioral perspective. It developed, at least

initially, from an extensive body of experimental research and theory associated with animal and human learning research. Theorists of behavior such as Skinner (263,264,265), Pavlov, and Hull—who were not psychotherapists or directly interested in the treatment of mental dysfunction—are most responsible for the ideas that underlie this approach. A wide variety of therapeutic approaches derived from these basic research efforts have been developed by later theorists such as Wolpe (302) and Bandura (11).

The basic assumption of behavioral theories is that most persistent pathological behavior is acquired through a process of learning. In essence, experiences in the individual's life instigate patterns of behavior which remain unless other conditioning experiences modify them. Therapies based on behavior theory usually begin with systematic analysis of the problematic situation and an identification of the specific behavioral or situational factors to be modified. Once it is known how and under what conditions these behaviors are maintained in the individual's behavioral repertoire, the therapist interferes directly with this preestablished order. Internal (cognitive) or external (environmental) patterns of behavior contrary to the well-being of the patient are modified by systematic retraining procedures.

Current clinical practice in behavioral therapy is derived from two laboratory-developed theories of learning. The first, operant conditioning, is derived directly from research by Skinner (e.g., 263). Because behavior is presumed to be lawful and predictable, behaviorists believe it is controllable once the relevant reinforcing variables (those that maintain the behavior) have been determined. Operant conditioning includes aversive counterconditioning to eliminate undesirable behaviors and/or positive reinforcement to establish and maintain new adaptive behaviors. Aversive counterconditioning entails pairing the patient's behavioral deviation with an unpleasant stimulus. For example, alcoholism has been treated by administering a substance to patients which would induce violent and uncomfortable physical reactions in the presence of alcohol. Positive reinforcement entails rewarding the patient for producing desired behaviors. For instance, positive reinforcement has been used to treat autistic children who are disassociated from reality and unable to engage in gratifying interpersonal relationships. These children are rewarded with verbal approval and candy when they show any evidence of social responsiveness or interaction.

Another form of clinical practice, developed by Wolpe (302), is reciprocal inhibition. This therapy is an outgrowth of Pavlov's classical conditioning studies and of Hull's learning theory. The theory underlying reciprocal inhibition is that neuroses (in particular, phobias) are characterized by persistent anxiety responses to situations in which there is no objective danger. The neuroses are produced when an individual associates high intensities of anxiety and neutral stimulus events. Therapy based on principles of reciprocal inhibition systematically desensitizes the patient to particular stimulus events. Thus, a patient with neurotic anxiety is taught to relax. Then, in a state of relaxation, he or she is asked to think about a mildly anxiety-provoking situation. This technique is then used with increasingly more disturbing situations. Relaxation inhibits anxiety, and the patient is progressively able to master the situations previously associated with anxiety reactions.

Although many of the behavioral therapies rely directly on learning paradigms tested with laboratory animals, a more recent trend (in part, exemplified by Bandura's work (11,12)) is the development of cognitive behavior therapies. Within such therapies, laws of learning are used as the basis for modifying cognitive processes (see 164, 180). The patient in cognitive behavior therapy takes an active role in identifying problems and working with the therapist to develop mechanisms to control desirable or undesirable thoughts. Bandura's (12) social learning theory is a related approach that emphasizes the role of observing others (models) who are reinforced or punished. There are also a variety of eclectic behavior therapies (e.g., 154) which employ a varying set of learning principles.

Common Factors.—Psychotherapy, as should be clear from the above, is derived from a range of assumptions. Although the three theoretical perspectives described above under-

lie most forms of therapy, there is considerable eclecticism in practice. A practitioner is likely to hold some views or use techniques that are consistent with one dominant theoretical perspective and to hold other views and use other techniques that are quite inconsistent with it.

In part, the reason for this eclecticism is that a number of important similarities exist across different theoretical persuasions. Some theorists such as Frank (84,86), in fact, argue that psychotherapeutic change is predominantly a function of factors common to all therapeutic approaches (e.g., 84). The primary ingredients of such common, nonspecific, factors are the therapist's understanding, respect, interest, encouragement, and acceptance. Thus, while the contents and procedures of psychotherapy may differ across theoretical orientations, all forms of psychotherapy share common "healing" functions. All therapists combat the patient's demoralization and sense of hopelessness by the relationship they establish with the patient and by providing an explanation for previously inexplicable feelings and behavior. According to those who maintain that such nonspecific factors are responsible for psychotherapy's effects, one reason for the success of therapy is because it removes the mystery from the patient's suffering and supplants it with hope.

MENTAL DISORDERS

Although it is true that one source of confusion about psychotherapies is the divergent theoretical assumptions of therapists, it should also be recognized that the nature of the problems dealt with by specific therapies varies widely. Not only are a broad range of problems considered psychopathological, but for any one individual, the identification of a disorder is often dependent on his or her own reports of symptoms. In contrast to physical diseases, which are usually accompanied by measurable physiological changes, mental disorders must usually be identified by a patient's or another person's report of a problem. Notwithstanding the many exceptions to this distinction between physical and mental illness, the difficulties of diagnosis of mental illness are widely recognized. An additional problem in diagnosis is that the severity of a mental/psychological problem is based on the context in which it occurs. A problem that may be diagnosed as a severe disorder in one situation (e.g., at work) may be considered a minor disturbance in another context (e.g., at home).

Widely varying phenomena have been considered mental disorders. Most therapists and researchers seem to contend that any problem which causes a patient discomfort and dysfunction is a mental health problem requiring treatment. For present purposes, the most important aspect of the problem would seem to be the level of dysfunction. Any person who is unable to carry out his or her normal responsibilities is a potential candidate for therapy. Level of dysfunction, however, is a difficult distinction to make. An individual may appear to be functioning well, but may be extremely troubled. One would want to alleviate such dysfunction and prevent more serious dysfunction.

Below, the disorders treated by psychotherapy have been grouped within three general categories: neuroses, psychoses, and conduct disorders. While the most current diagnostic manual (63) lists mental disorders somewhat differently, for the purpose of describing the range of mental disorders, this organization seems more appropriate.

Psychoses are severe disorders characterized by grossly illogical thought patterns and distorted perceptions of reality. The psychotic individual may have prolonged periods of melancholy or elation and may exhibit extreme isolation or withdrawn behavior. The symptoms of a schizophrenic disorder, the most prevalent type of psychosis, include bizarre delusions, auditory hallucinations, and incoherence. Schizophrenia is accompanied by a deterioration in level of functioning in areas such as work, social relations, and self-care.

Neuroses, the most common disorders, are problems marked by feelings of anxiety, fear,

depression, guilt, and other unpleasant emotions. Anxiety, for example, is related to physical symptoms such as trembling, sweating, and heart pounding. It may result in the individual's feeling continually worried and being overly attentive. The individual may feel impatient and irritable, and may have insomnia. While associated with discomfort, such anxiety may not impair social or occupational functioning more than mildly. In contrast, agoraphobia (an irrational fear of crossing or being in open spaces) causes individuals to avoid certain situations, and thus may interfere seriously with social and occupational functioning. Neurotic conflicts may also be the basis of other problems, such as divorce and child abuse.

Conduct disorders are characterized by a lack of normal feelings and conscience that results in behaviors which violate basic social rules. Conduct disorders are reflected by problems such as uncontrolled impulses (e.g., outbursts of aggressiveness, failure to resist impulses to steal or to set fires) and drug and alcohol abuse. Conduct disorders among children and adolescents include such symptoms as physical violence against persons or property (e.g., vandalism, rape, mugging), chronic violations of rules (e.g., truancy from school, alcohol or drug abuse), and persistent lying and stealing.

In addition to the above disorders, there are a variety of conditions which reflect interactions between different types of problems. Most prominent here are psychosomatic disorders, where physical symptoms are thought to have a psychological base (e.g., 188). Some have suggested (e.g., 152) that over 50 percent of the patients seen in general medical practice have psychologically based problems. Conditions such as asthma, colitis, anorexia nervosa, as well as physical problems such as obesity and headaches due to stress, have been considered suitable problems for psychotherapeutic treatment.

The severity of any psychopathological disorder depends, in part, on the individual's reaction. For example, whereas depression in some individuals may be associated with poor appetite, insomnia, and loss of energy, in others it may be associated with an attempted suicide. Individuals also differ in the degree of subjective distress they experience and the urgency with which they desire and need help. Whereas for some individuals, mild depression is so bothersome that they cannot function, others who appear very depressed carry out normal lives. Whereas some individuals who seem only mildly troubled feel in great need of therapeutic help, others who have suffered major trauma are resistant to seeking help.

The diagnosis of a disorder, as well as its seriousness, is thus inevitably part of a subjective decisionmaking process on the part of the therapist. The therapist is usually responsible for the diagnostic decision and is influenced both by the patient's report of the problem and by objective evidence (e.g., data on the patient's inability to communicate with others). As described in the next section, particular therapists may view these problems differently, some focusing on behavioral disorders, others on dysfunctional thoughts and emotions. These different emphases sometimes make it difficult to compare effectiveness across psychotherapies and psychotherapists.

PRACTITIONERS

As indicated above, the delivery of psychotherapy differs not only in terms of theoretical assumptions and types of disorders treated, but also in terms of the personnel who offer therapy. Therapists have an important influence on the nature of psychotherapeutic treatment. Differences in therapists' theoretical orientation, or preferred technique, as well as differences in their training, contribute to the difficulty of describing and assessing psychotherapy.

Professional therapists differ in a number of ways, both related and unrelated to their training and disciplinary orientation. Thus, therapists may differ with regard to their underlying assumptions concerning psychotherapy. They

may adopt a psychodynamic, humanistic/phenomenological, or behavioral perspective, or an eclectic set of beliefs based on several major orientations. Therapists also differ in the modalities and techniques they employ to provide treatment. For example, practitioners may perform therapy mainly with individuals, groups, or families; as well, they may focus more on early events in the patient's life or on recent events, or lead a patient to insights concerning behavior or feelings. These differences in approach are not clearly associated with the therapist's professional training and identification.

The nature of the relationship that a therapist establishes with a patient may be a particularly important factor in the nature of changes caused by psychotherapy. The patient reacts to the therapist in a general way, not necessarily to specific characteristics. Thus, therapists and researchers have been very concerned with the therapist as a human being (see 274). Professional therapists obviously differ in terms of their personal characteristics. Some of these characteristics, such as sensitivity, empathy, activeness, and involvement, are seen by some theorists (e.g., 86) as essential to successful therapeutic outcomes. Therapists also differ with regard to age, sex, cultural background, ethnic factors, level of professional experience, psychological sophistication, social and cultural values, and cognitive styles. Any of these characteristics may have a significant effect on the way in which psychotherapy is delivered. These characteristics may interact with the practitioner's theoretical perspective to produce a unique therapeutic treatment.

For the purposes of this report, it seems important to distinguish professional from nonprofessional helpers. While it is sometimes difficult to make distinctions between what professionals and nonprofessionals actually do in treatment settings, the professional usually has a very different orientation and different responsibilities from those of the nonprofessional. Obviously, persons with mental distress can be helped by a variety of other individuals, including family and friends. These other individuals may assist the patient in understanding his or her problems and in making behavioral adjustments. The unique contribution of professionally trained therapists is important to specify.

The primary professionals who deliver psychotherapy are psychiatrists, clinical psychologists, and psychiatric social workers (see 118). In 1977, there were approximately 28,000 psychiatrists professionally active in the United States. Of this number, approximately 24,500 spend at least half of their time in patient care; the others are primarily administrators, teachers, or researchers (5). Psychiatrists are medical school graduates who have had a 1-year internship and a 2- to 3-year residency in psychiatry at an approved hospital or clinic. In addition, they must have practiced their specialty for 2 years and be tested in order to qualify for certification by the American Board of Psychiatry and Neurology.

One problematic aspect (103) to understanding the delivery of psychotherapy is that many nonpsychiatric physicians also provide psychotherapy services. Thus, according to the National Institute of Mental Health (see 225), over half of the patients seen for psychiatric problems are treated by primary care physicians. It is important to emphasize, however, that while many nonpsychiatric physicians are involved in mental illness diagnosis and treatment, their involvement may be very limited (see 60).

In terms of psychologists, according to a 1976 membership survey by the American Psychological Association, there were approximately 23,000 psychologists engaged in mental health activities. These psychologists worked in individual or group practice settings, mental health centers, general or psychiatric hospitals, and outpatient clinics. A 1977 survey (183) found similar results, although it uncovered a slightly higher number (approximately 26,000) of clinical psychologists (because nonmembers of the Association were located).

Generally, clinical psychologists hold a doctoral degree (either a Ph. D. or a Psy. D.), although some (less than 10 percent) hold only a master's degree. An integral part of the training of clinical psychologists is a 1-year internship in a clinic or hospital setting approved by the

American Psychological Association; in addition, clinical psychologists typically have several years supervised experience, and Ph. D.s receive training in research (which culminates in a dissertation). A psychologist who has had at least 5 years of postdoctoral experience may apply for advanced certification from the American Board of Professional Psychology.

A large number of psychotherapists are clinical social workers. In 1978, 10,922 social workers were included in the Register of Clinical Social Workers (see 2); in addition, many other social workers who are members of the National Association of Social Workers practice psychotherapy. Psychiatric social workers have had 2 to 3 years of postgraduate training in a school of social work which typically includes an internship. Psychiatric social workers with a masters degree in social work and 2 years of experience may take a test for certification by the Academy for Certification of Social Workers.

Although the largest number of identifiable psychotherapists are either psychiatrists, psychologists, or psychiatric social workers, various other professionals are trained in psychotherapy and administer it to patients. These other professionals include psychiatric nurses, pastoral counselors, educational psychologists, and occupational therapists, as well as a number of individuals from other disciplines. Nurses, in particular, play an important role in the provision of psychotherapy. According to a 1972 survey (see 2), almost 38,000 registered nurses reported working in a "psychiatric/mental health area;" about 4,000 of them had master's degrees. These nurses and other professionals have had unique disciplinary training, but they have also completed internships with (or under the supervision of) psychiatrists and psychologists, and they often provide treatment in combination with other professional therapists. To assess the effects of psychotherapy, the role of these professionals needs to be recognized.

In addition, the work of paraprofessionals (i.e., psychiatric aides and trained volunteers) should be noted. The Alcohol, Drug Abuse, and Mental Health Administration (2) has estimated that over 150,000 paraprofessionals work in direct contact with mental patients. Many psychotherapy settings rely on the services of personnel who, though not formally trained as therapists, have a great deal of contact with patients. Such paraprofessionals may play a role in identifying patient problems and maintaining therapy begun by the professional therapist (4,65).

DELIVERY SETTINGS

Variations in psychotherapy are also seen in the diversity of settings in which therapy takes place. These settings may have an important impact on the nature of psychotherapy. In some cases, the setting influences the type of therapy available to the patient. Settings may include traditional inpatient mental hospitals, community mental health centers (CMHCs), private offices, residential treatment centers, and other locations such as schools, offices, and military facilities.

Prior to the establishment of CMHCs in 1963, most psychotherapy was provided in mental hospitals; certainly, these settings provided much of the societally supported mental health treatment. Although there is some controversy as to the relationship between the development of CMHCs and deinstitutionalization of mental hospital patients, there has been a sharp decline in the number of hospital beds for mental patients. In 1962, psychiatric hospitals had a total of 717,000 beds with 91.0-percent occupancy (194); in 1978, there were only 219,517 beds with 80.7-percent occupancy (121). Although large numbers of the severely disturbed are still hospitalized, their stays are generally much shorter than was previously the case. The nature of treatment has also changed. Patients today have more frequent access to specific treatments (i.e., treatment other than being "housed" in the hospital), including group therapy, individual therapy, and psychoactive drugs (i.e., substances that alter mental states). In addition,

patients are usually exposed to a number of different therapists (e.g., a psychiatrist who supervises their use of drugs, a psychologist who does individual counseling, and a psychiatric nurse or social worker who leads group therapy).

CMHCs and other outpatient services represent the fastest growing segment of the mental health delivery system. Since their inception in 1963, CMHCs have been made available to almost 50 percent of the U.S. population. In 1975, according to the National Institute of Mental Health (197), patient visits to CMHCs totaled 1,961,000. As do outpatient mental hospitals, CHMCs use a variety of mental health professionals, and a patient is likely to have exposure to several modes of treatment. CMHCs tend to emphasize short-term treatment, even though they often deal with chronic patients.

A large segment of mental health treatment takes place in private offices. Once available only to the well-to-do, private practice has flourished recently as public and private insurance coverage for mental health disorders has become more widespread. It is estimated that there are now 15,562 physicians, 4,700 psychologists, and 2,189 social workers engaged more than half-time in the private practice of psychotherapy (2).

Several other settings for psychotherapy are worth noting. Outpatient mental health services are growing in acceptance as part of medical primary care. Health maintenance organizations, hospital-based outpatient clinics, and even some small physician groups are including mental health professionals on their staffs (e.g., 26). In general, such services are used to supplement medical treatments and/or to reduce reliance on physical health care. Much psychotherapy also goes on in nonpsychiatric residential treatment centers. For example, under some circumstances, homes for children with behavioral and learning problems and prisons can be considered treatment centers. In addition, many organizations such as schools, industries, and the military provide in-house resources to deliver psychotherapy for members with mental health problems.

SCOPE OF THIS REPORT

As should be clear at this point, psychotherapy refers to a broad range of treatments used to ameliorate a number of different kinds of conditions, by different therapists, and in a variety of settings. The present report, whose goal is to describe the scientific basis for assessing psychotherapy, attempts to delimit its discussion in two ways.

First, the report attempts to describe those aspects of psychotherapy that have the most important implications for financing and reimbursement policy. This is reflected in an emphasis on severe dysfunctions (which are, potentially, the most costly) and an effort to distinguish the applicability of psychotherapy to particular problems. Second, the report attempts to describe the current range of practice and research on psychotherapy by referring to the four categories of variables described above. Thus, the theoretical assumptions of therapy, and the characteristics of patients, therapists, and delivery settings serve as categories that need to be considered in psychotherapy assessments.

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3.
Methods for Assessing the Effectiveness of Psychotherapy

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3.
Methods for Assessing the Effectiveness of Psychotherapy

Given the diversity of theoretical approaches to psychotherapy, as well as the range of mental health problems, therapists, and delivery settings, it is difficult to give simple answers to questions about psychotherapeutic efficacy. Although the position adopted here will be that it is possible to answer efficacy questions through scientific research, such questions are undoubtedly difficult to answer. Both because of the inherent nature of psychotherapy and because of the nature of the scientific research process, answers to questions about psychotherapy will require a complex sequence of steps and the adaptation of several research technologies to the problem of psychotherapy.

Questions about psychotherapy are complex, because, for policy purposes, they have been stated very globally. It must be recognized that general statements as to whether psychotherapy is effective are necessarily equivocal and must be tempered by information as to the specific conditions under which particular treatments are efficacious. The way in which the level of specificity of one's question affects research on psychotherapy and the methodological considerations that affect the conduct and interpretation of efficacy research are described below.

Most research assessing the effectiveness of psychotherapy has examined very specific issues. Which technique is more effective and how effectiveness is moderated by differences among patients, therapists, and settings are the typical foci of psychotherapy outcome research (see 207,287). Much of this research shows that some techniques are more effective than others, although, unfortunately, no-treatment or placebo treatment control conditions are not always included as part of these studies. Without such comparison conditions, their implications for the ultimate effectiveness questions are difficult to assess.

Questions about the effectiveness of specific types of psychotherapy usually deal with the conditions under which therapy is provided. Thus, the type of mental dysfunction, the characteristics of the patient, and the characteristics of the delivery system are the central variables being tested. Although this research can yield generalizations to policy about psychotherapeutic treatment, the inherent limitations should be recognized. Unless generalizability has been empirically established by tests conducted with a range of patients in an actual treatment site, the conclusions must be regarded as tenuous.

A number of methodological issues that arise in assessing the efficacy of psychotherapy are described in the following sections. The first issue has to do with how one measures the outcomes of therapy. There is a substantial literature describing procedures for determining the presence and strength of particular results of therapy (see 293). This literature is examined below in terms of the development of useful policy data about psychotherapy. A second set of methodological issues concerns the design of psychotherapy research and the confidence one can have that obtained changes are a result of a particular psychotherapeutic intervention. The research design problems have to do with determining the reason for outcomes and organizing research so that extraneous factors can be ruled out as the cause of treatment effects (see 41, 105). Also considered below are the problems of actually conducting psychotherapy research, including the ethical and pragmatic issues of employing random assignment procedures. A separate set of methodological problems having to do with the synthesis and interpretation of multiple efficacy studies is also described. A number of techniques have been developed for reviewing and integrating findings, and, potentially, these methods may allow more definitive assessments of the psychotherapy literature.

MEASURES OF PSYCHOTHERAPEUTIC OUTCOMES

Measuring the outcomes of psychotherapeutic treatment has been a major focus of psychotherapy theory and research for at least the last two decades. Developing a technology for measuring outcomes is the first step in determining psychotherapy's efficacy. It involves decisions about what variables are important to assess, as well as the development of measurement techniques that can be used in actual treatment settings. Because psychotherapy takes a number of forms (e.g., treatment based on different theoretical assumptions), much of the literature deals with the selection of outcome measures that are appropriate to the goals of the treatment under study. One recent focus has been the development of measurement procedures that can be used across different types of psychotherapy. Some of this literature has proposed "batteries" of instruments (e.g., 293), whose intent is to capture (through the use of several types of measurement procedures) the core changes that result from any application of psychotherapy.

Underlying the effort to develop such common measures is a belief that no one instrument or set of procedures can measure all the outcomes of psychotherapy (21). Different psychotherapeutic techniques applied by a range of therapists to various patient populations may require different measures of outcome. Thus, functional measures of behavioral effects, although perhaps appropriate to assess behavioral therapies, might be inappropriate to assess psychodynamically based therapies. Similarly, cognitive measures might be seen as inappropriate to evaluate behavioral therapies.

Notwithstanding the unique goals of particular therapies, there seems to be support for the concept that many of the changes produced by psychotherapy can be assessed along some common matrix. Probably, this implies the use of a matrix that includes both behavioral and cognitive variables. Any single study of psychotherapy, thus, would incorporate a number of measures, not necessarily tied to the goals of the therapy. The use of such multiple common outcomes also makes monitoring potential detrimental effects more possible. Such effects may not be detectable if unique therapy-relevant measures are used.

Measurement Criteria

To be useful in an effectiveness analysis, measures of psychotherapy outcome must be both reliable and valid (see 201). Reliability means that the measure gives the same finding over multiple uses (assuming no change in what is being measured) and provides the same findings when used by different researchers. Validity means that the measure assesses the outcomes that it is supposed to measure and provides data that are generalizable (see, e.g., 48). Neither reliability nor validity is intended as a theoretical concept; each is established by pretesting the measuring instrument.

The use of reliability and validity criteria results in particular measurement processes' being validated to measure specific therapeutic effects. Thus, for example, a single instrument might not be reliable and valid for assessing improvement in both depression and agoraphobia; reliability and validity, at least, would have to be separately established for each condition. Moreover, outcomes have different meanings to patients, the therapist, and interested third parties. Validity may depend on who's perspective one adopts in assessing the measurement instrument. Below, some of the differences in measures designed to collect data from various individuals affected by therapy are described.

Measures From Patients

Reports and ratings by patients of their behavior, thoughts, and feelings represent one typical, and usually important outcome measure. Often, such data are collected on questionnaires or through interviews. These measures structure verbal reports of the patient's ability to cope with various problems, and include paper-and-pencil measures of personality and adjustment (31). Although patient assessment measures yield important data, they have obvious limitations. These limitations include

social desirability effects (patients' responding to create a certain impression) and response bias (e.g., positive responding to express appreciation to the therapist). Validation using other types of measures can determine the effects of such response patterns.

One type of patient measure is a functional self-report instrument which asks patients to report on aspects of their daily functioning (123). Although narrative reports of functioning may be collected as a part of any therapeutic treatment, instruments that incorporate standardized questions have been used to systematize this data collection. Such an instrument may include a series of structured questions about time lost from work, feelings of guilt, and satisfaction with therapy. Careful pretesting of these questions (e.g., by comparing responses of individuals known to be psychologically impaired with those not impaired) yields a subset of these questions. Responses can be quantified and summed to form composite scores (total and subset) of social adjustment and functioning. A number of these instruments have been developed which show high reliability and validity (see 123).

Another type of patient measure is represented by "psychometric" questionnaires and personality tests, such as the Minnesota Multiphasic Personality Inventory (MMPI). Such instruments, which are perhaps the most common type of measuring tool for both diagnostic and assessment purposes, ask a variety of questions about the respondent's thoughts. Patients, for example, those suffering from depression and anxiety (210), have been shown to respond to these questions according to particular patterns. For MMPI, a subset of questions has been developed which tends to be answered differently by those who are trying to fake responses and those who are not; thus, social desirability and other biased response patterns can be detected (see 55).

Measures From Family and Friends

Friends, work associates, and relatives of patients are often asked to supply information about a patient's functioning, and such data concerning patient behavior and inferred mental states have been used to assess therapy outcomes (e.g., 116; see, in particular, a report by the National Institute of Mental Health, 293). The value of these measures may be due to the great amount of information that family, friends, and work associates have about the functioning of the patient. These individuals have a chance to observe the patient in a variety of situations and may thus have a great deal of "data" on which to base their responses to questionnaires. Although these individuals have self-interests which can bias the data, they may have less motivation than the patient to reflect socially desirable responses and less need to show gratitude to the therapist.

The outcome variables included on these questionnaires also assess outcomes that may be more important to "society" than the variables included on patient self-report questionnaires. For example, questions about how much disturbance the patient causes in family life or work routines, or how often the patient has secured employment or performed satisfactorily in school are typically included in these instruments. Such questions may be more important for societal evaluations of the usefulness of therapy than questions about coping with daily activities that are typical of self-report measures. These techniques are validated both by comparing the observations of those who know the patient against one another (e.g., family members compared to work associates) and by comparing these data with other available information about the patient.

Measures From Therapists

Measures taken from the therapist and others involved in the therapeutic process are another frequently used source of outcome data. While the therapist can provide a first-hand perspective on the therapeutic process, such data may be biased because the therapist has a vested interest in producing positive outcomes. Nevertheless, a substantial research literature on such "clinical judgments" exists, and there is some evidence that therapists can provide useful and relatively unbiased reports. Particularly in terms of assessments of patient functioning, there is evidence that therapists can provide valid data (e.g., 67,108,161,184,198).

Generally, the more specific and concrete the observations required of therapists, the greater the resulting interrater reliability and validity (186,187). These observations can range from "counts" of behavior exhibited by patients during therapy to therapist ratings of the patient's functioning with his/her family (based, perhaps, on how the patient has reported family relationships). To assess some therapies, where the concern is more with mental phenomena than behaviors, instruments have been designed to capture nonobservable behavior. While such instruments can provide one type of information about the effect of therapy, their usefulness may depend on how the goals of therapy have been described and the availability of validation data.

A focus on the specific behaviors of the patient may allow therapists to provide easily validated data about patient functioning; however, the therapist's desire to show improvements as a result of therapy may bias the use of such measures. In an attempt to remove this bias from functioning judgments, some researchers have trained members of a therapy staff who are not individuals actually involved in therapy to conduct such assessments (e.g., 209). A variety of such "blind" data collection techniques have been employed.

Measures From Community Members

Information on the outcome of psychotherapy can also be collected, more broadly, from community members or agencies. These measures may include patient data on criminal arrest rates, measures related to the patient's work, or rates of medical utilization (from nonpsychiatric illness). The range of potential community measures is very large and, though often unwieldy, seems to reflect important information that is needed to assess adequately the effects of psychotherapy. As is described later in the discussion of cost-benefit measurement (ch. 5), such variables are important to assess in order to conduct comprehensive cost-effectiveness and cost-benefit analyses (CEA/CBAs).

Many of the data collected on community variables can be assessed in relatively direct ways. The information often can be gleaned from existing court records, hospital charts, insurance claims, and similar records. To be utilized as part of an effectiveness assessment, however, such measures must be tested for reliability and validity. Oftentimes, the validity of record data is easy to establish because of its obvious relationship to desirable psychotherapy outcomes (referred to as content validity). It should be noted that much of this information can also be collected directly from patients (e.g., data on medical utilization, if it can be shown that patients report these data accurately).

Community data have also been taken to mean a patient's economic contribution to his or her community (see, e.g., 305). Thus, the patient's net monetary contribution in terms of earnings and taxes may be used as one measure of psychotherapeutic outcome (see ch. 5). These outcomes have been assessed for psychotherapy in a number of investigations (e.g., 51,114) and are described later in terms of CEA/CBAs of psychotherapy.

Summary

The outcomes of psychotherapy can be measured in a variety of ways. It is probably impossible to develop any single measure of outcome which would reflect the diverse changes that might be brought about by psychotherapy. At present, there exists a diverse set of procedures for eliciting information from patients, family, therapists, and others. Data from each of these sources, if properly assessed for reliability and validity, provide information needed to assess psychotherapeutic effectiveness.

RESEARCH DESIGNS

The development of reliable and valid outcome measures represents only one part of the assessment problem. One must be able to determine which of the many processes utilized in therapy are responsible for improvements and must also be able to test the possibility that nontherapeutic components are responsible for obtained effects. The particular research designs and techniques used to test psychotherapeutic efficacy are, in part, determined by what questions are being asked. These questions depend on the goals of both the patients and the therapy program. The present discussion focuses on the possible ways of carrying out psychotherapy outcome research and how questions about psychotherapy can actually be tested.

A basic element of good research design is to frame the questions to be tested in a very specific way. Whereas the global question of psychotherapy's efficacy may be obvious (i.e., "is therapy effective?"), the questions asked of research need to be more circumscribed (21,207). Such circumscribed questions usually develop as research progresses through a series of stages (105). At a formulative stage, research is based on extensive observation and summary descriptions of these observations. Then, the focus shifts to a description of patterns among data elements. At a later stage, explanations and theories of the observed patterns are formed. It is usually these later explanations that are tested in formal experiments and that represent the bulk of the outcome research literature. Although effectiveness studies can be conducted on a post hoc basis (i.e., a design constructed after the data have been collected), such research usually can be interpreted only when theory and formal experimental evidence are available (e.g., 47,151).

The purpose of the present report is to understand psychotherapeutic effectiveness; thus, the focus is primarily on data collected in actual treatment settings (in vivo). A great deal of psychotherapy research has been carried out under laboratory or analog conditions, however, and at least some researchers (e.g., 10) view the data from this research as very important. To the extent that such data provide theoretical support for in vivo findings, they are probably necessary to consider. OTA, in previous discussions of the evaluation of medical technology (202), has regarded this as efficacy rather than effectiveness research (ideal v. actual conditions). When applied to psychotherapy, however, the efficacy/effectiveness distinction seems ambiguous because of the variety of factors (therapist, patient, setting) which affect the outcome of a particular treatment and the absence of a clear demarcation between laboratory and nonlaboratory conditions. It seems desirable in the case of psychotherapy, instead of trying to differentiate between assessments of efficacy and effectiveness research, to note clearly the different conditions under which research is conducted.

In terms of developing research tests of therapeutic effects, some limitations of prevailing scientific logic should also be noted (see 41). Testing particular hypotheses does not permit the psychotherapy researcher to prove that a particular therapeutic effort causes a particular outcome; instead, one tests whether alternative explanations can be disregarded (47,105). Resulting inferences are probabilistic and indicate, within identifiable error rates, the likelihood that generalization can be made from the study's sample to other populations.

The inherent variability of human behavior, thoughts, and feelings often makes the findings of psychotherapy research equivocal. A great deal of variability will exist under any conditions, and these variables must be separated from the effects of the treatment. In addition, because patients can be affected by many variables (i.e., factors other than psychotherapy) that cannot be controlled, there may be numer-

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ous alternative explanations for any apparent improvements produced by psychotherapy. The number of alternative explanations can be reduced somewhat by careful design of psychotherapy research and by the inclusion of control conditions that hold all elements constant, except some aspect of a treatment. A variety of experimental designs have been developed to reduce the plausibility of a number of standard alternative explanations. These research designs are not unique to psychotherapy (see 27,41, 94,165), but their use in assessing the efficacy of psychotherapy raises a significant set of unique problems. Several types of research designs that can be used to assess psychotherapy are described below.

Therapy Versus No-Therapy Designs

The classical research design, as applied to psychotherapy, assigns patients either to receive psychotherapy or not to receive psychotherapy according to a random selection procedure. It can be expected that randomization will distribute differences in patient characteristics (e.g., level of mental dysfunction, amenability to treatment) equally between the psychotherapy and no-psychotherapy conditions. Typically, the psychotherapy condition is referred to as the "experimental" condition, while the no-psychotherapy condition is referred to as the "control" condition. The functioning of each subject in the experiment is measured following psychotherapy (or following an equal interval of time for control subjects). Although measures can be taken at other times (e.g., pretherapy), additional design problems (having to do with the effect of taking a test or responding to a questionnaire more than once) result with such procedures.

The measurements of functioning (including cognitive and behavioral outcomes) obtained from the treatment condition contain three possible "effects:" 1) "effects" of treatment, 2) "effects" due to whatever nontherapy factors are affecting the patient, and 3) "effects" of the haphazard fluctuations in functioning measures caused by imperfections in measurement instruments and the variability of behavior. The measurements of patient functioning obtained from the control condition are used to "subtract" the "effects" due to treatment from the "effects" due to other factors. A control condition is necessary to perform the above "subtraction" because it provides the only empirical way of knowing how nontherapy factors and measurement problems affected the outcome.

When this type of therapy versus no-therapy research design is used, explanations of apparent improvements in patient functioning that are actually due to factors other than therapy itself can be rejected with reasonable confidence. As long as patients have been assigned randomly to therapy and no-therapy conditions, it can be assumed (within identifiable probability limits) that the obtained "effects" are due to the psychotherapeutic treatment. If patients are not randomly assigned, but are "matched" on various characteristics, such an unequivocal statement is not possible. It can be argued that differences existed between experimental and control group subjects that were not controlled by matching and that these characteristics are responsible for differences obtained between therapy and no-therapy groups. The absence of a control group makes such inferences about causal factors extremely difficult to develop.

Therapy Versus Therapy

The basic rationale used to distill the effects of psychotherapy from effects of measurement and factors unrelated to therapy can be extended to test for the superiority of one psychotherapy over another. In such a therapy comparison study, patients are assigned randomly to therapy A, therapy B, . . ., and, perhaps, to a no-therapy or delayed-therapy group. In effect, such a design results in the use of multiple treatment groups. The use of no-treatment control groups is not ruled out, but such groups are often not employed in therapy comparison studies because the purpose of such studies is the assessment of the best therapy. It should be noted that comparisons across therapies are often made without use of an experimental research design. When that is done, patients who have received different therapies are compared without regard to the selection factors that in-

fluenced which patients received which therapy. In such nonexperimental research, differences may be due to a variety of factors (e.g., preexisting differences between patients in each group), and these variables need to be controlled before such data are useful.

In another common design used to compare therapies, two potentially effective therapy techniques are presented separately to two groups of subjects and in combination to a third group (yielding individual and combination therapy conditions). Statistical analyses are used to separate the effects of the therapies and to compare them with no-therapy conditions. A particular concern of the statistical analysis is to test for interaction effects (e.g., where therapies combine to produce an effect that is different from the sum of the two effects alone). A variant of this type of design has been used to assess the joint, as well as separate, effects of chemotherapy and psychotherapy (e.g., 142).

Therapy Versus "Placebo" Therapy

One problem that has plagued much psychotherapy research (as well as other research on medical interventions) is that some of the effects obtained by psychotherapy researchers may be due to placebo effects. The "aura" of being in therapy and the expectancy that one is finally about to be "cured" may be a form of treatment (136,256). The problem of separating these effects from those of formal therapies is analogous to the use of sugar pills in controlled medical research and involves the use of placebo-control conditions. In such conditions, the patient may receive attention from a therapist, but therapeutically meaningful discussion is avoided and no specific techniques are used (e.g., 176). It is easier to employ such control procedures when testing the efficacy of behavioral, or even psychodynamic, therapies, in which the therapist plays an active and directive role.

Probably, because of the nature of psychotherapy and the difficulty of specifying the precise ingredients of therapy, it is impossible to control all placebo effects (207,280). The relationship that a therapist establishes with a patient is acknowledged (e.g., 84) to be an important component of therapy, and it is not clear how such effects should be distinguished from treatments per se. It should also be recognized that while placebo effects may inflate the true effects of therapy, they may often distort the data obtained in control conditions. Few control conditions can be "pure" in the sense that patients do not interact with a therapist. If for no other reason than to monitor the patient, those in control conditions must usually be supervised by a therapist. The effects of this supervision may make therapy appear to be less effective.

Control conditions may be introduced to assess the effects of such factors as therapist "demand characteristics." An ardent researcher or therapist may communicate to patients what the results of an experiment are "expected" to be (e.g., 240). Experiments using self-report measures obtained from patients are especially prone to this problem. To examine the strength of these demand characteristics, psychotherapy researchers can use designs in which patients are told that therapy will produce a temporary worsening of functioning, when in actuality the researcher expects no worsening. Alternatively, the researcher may tell patients in some conditions that therapy should not be effective for several months, when gradual improvement actually is expected. If the "demanded" effects are not found in these conditions, the researcher can have some confidence that demand characteristics are not causing therapy effects. Although these controls may not be employed in every outcome study, they are often used in developing research designs.

Quasi-Experimental Designs

For a variety of reasons, including ethical problems of withholding treatment (see discussion below), the experimental designs described above are often not employed. The real or perceived difficulties of assigning patients on a random basis to therapy or no-therapy conditions make other types of comparisons necessary. There are a number of quasi-experimental designs that can be used in such circumstances (see 41). Such designs are sometimes considered to be poor substitutes for "pure" experimental designs, but this may not be the best way to view them. Quasi-experimental designs, if care-

fully constituted, eliminate the most important plausible alternative explanations for the results of an experiment and can provide useful information. Quasi-experiments based on these designs, however, may involve complex statistics and require the collection of many more data (perhaps from fewer subjects) than a "true" experiment would.

One common quasi-experimental design in psychotherapy is referred to as an intensive design (97). Typically, intensive designs use fewer subjects than experimental designs, but compensate by obtaining more measures on a frequent basis and by obtaining clear "baseline" measures of patient functioning. The intent is that sudden improvements will be dramatic and closely correlated with the onset of therapy. To the extent that these changes are sudden, many of the alternative explanations can be ruled out (despite the lack of a control group). The use of intensive designs, however, depends on the type of therapy and the outcomes that are expected. Only therapies that posit observable and rapid changes (typically, the more behavioral therapies) can be tested with such designs.

Return-to-Baseline Designs.—In this design, patient functioning is measured several times before therapy (the baseline period) and several times during therapy (the manipulation period). Therapy is then withdrawn abruptly (reversal to second baseline), and it is expected that there will be a return to lower levels of functioning similar to those found during the first baseline period. Repeated measurement continues during this period and during a return to therapy (second manipulation). Therapy is then phased out with the hope that improvements will be maintained.

An example of this type of design is Allen, Hart, Buell, Harris, and Wolf's (3) study of a single child. The child had isolated herself from other children, causing severe psychological problems. The amount of time that the child spent with adults and other children was measured during the baseline period. A simple therapy that provided reinforcement for her interactions with other children was then provided. Measurement continued during this period, as well as after therapy. Later, there was an abrupt withdrawal of the reinforcement (reversal to second baseline), followed by its reinstitution. The results showed very noticeable changes in the girl's interactions. In the absence of other factors (besides therapy), the effects were seen as demonstrating therapeutic efficacy.

Intrasubject Multiple Baseline Designs.— To obtain information analogous to that obtained from a separate no-therapy control group, it is also possible to separately treat and assess functioning in different areas of the patient's life. Thus, treatment is designed to improve one aspect of functioning, and the patient's other behavior is used as a control. Such a design, while having advantages because changes can be compared with only one subject, suffers from the obvious problem that effects may generalize across function areas. In fact, for some therapies generalization of effects could be expected, and an intrasubject multiple baseline design would lead to "missing" the effects of therapy.

An example of this type of design is provided by Morganstern (189). The effectiveness of aversive conditioning on obesity (pairing nauseous smoke with eating certain foods) was examined by conditioning a patient to one type of food, then after several days, to another. Because eating of other foods was found not to change until aversive conditioning was applied to the particular foods, it was possible to infer that the therapy produced changes.

There are a number of variations on this intrasubject multiple baseline design. Multiple subjects can be used, and different combinations of treatment can be tested. This design does not eliminate alternative explanations due to placebo or demand characteristics, but can eliminate some problems inherent in nonrandomized experiments. Thus, additional subjects can serve as controls to assess the importance of factors such as spontaneous remission (improvement without treatment). However, the use of this design may be severely limited by the types of problems (very specific) and the therapies (mostly behavioral) which one tests.

Program Evaluations

The design considerations described above implicitly refer to psychotherapy as a unitary treatment that can be applied or not applied to form experimental and control conditions. However, as chapter 2 points out, psychotherapy treatments are comprised of a number of factors. The theoretical orientation of the therapy, usually the basis of a label for the treatment, may not adequately describe the treatment as it is actually delivered. Depending on the nature of patients' problems, therapists' orientation and skill, as well as aspects of the delivery setting, therapy may have different outcomes. One possibility is to treat each of these factors as an independent variable and to construct multifactor designs. In such designs, subjects are randomly assigned to different therapies, therapists, and settings. A more recent trend, though, has been to conduct such outcome research through program evaluations (see 212). In such evaluative research (e.g., 9, 159,252), one evaluates a complex of treatment variables that have been organized as a program (e.g., a community mental health center (CMHC)).

Thus, for example, a program evaluation study of a CMHC tries to assess how and to what extent patients who receive treatment at the center are aided. The CMHC, in addition to being community based (which is hypothesized to be an adjunct to treatment), may offer patients a number of therapies, and patients may be treated by multiple professionals and paraprofessionals. Under such circumstances, where joint effects of these treatments are expected and where it is extremely difficult to separate—for research design purposes—the components of treatment, program evaluation yields a design that may be more compatible with the actual circumstances. Evaluative research does not preclude the conduct of experiments where individual aspects of the treatment are assessed.

The designs for program evaluation studies of psychotherapy can include aspects of the true and quasi-experimental designs described above. In general, the same methodological considerations for research designs apply to program evaluations (229,298,303). There is, in fact, a substantial literature on the use of the experimental designs in program evaluation (e.g., 230,249). The literature describes both how complex variables such as psychotherapy can be conceptualized and the conditions for implementing randomized designs. Similarly, the literature on quasi-experimental designs has been related to program evaluation (e.g., 41, 230). The principal difference between these designs and traditional research design is in how one conceptualizes the treatment. In a program evaluation study, the treatment includes a number of elements. These elements, at least in the initial stages of such an evaluation, are not separately tested.

Even though program evaluations are designed specifically to aid in policy decisionmaking, there are a number of endemic problems. Just as it is difficult to organize a traditional psychotherapy outcome study (i.e., randomly or otherwise assign patients to treatments), it is difficult to organize program evaluation studies. In fact, because the randomization units are more complex, such evaluation studies are often very difficult to carry out well, and there is a substantial literature about implementation failures. In addition, program evaluation studies may not resolve the underlying conceptual problems involved in assessing psychotherapy. It may be difficult to determine through a program evaluation what factors were responsible for the success or failure of the program.

Difficulties in Conducting Research

There are a variety of problems which make it difficult to conduct psychotherapy outcome research. Some of these problems, which relate to the inappropriateness of some methods to test particular therapies (e.g., intensive designs) and the problem of multiple factors affecting outcome (e.g., the role of therapist variable), have already been described. There are also problems, however, which are perhaps more important, having to do with the pragmatic and ethical difficulties of conducting experimental research.

While the advantages of experimental methods to develop unequivocal data are well known and widely accepted, there are obvious ethical problems connected with decisions to withhold treatment (e.g., 45,229) or to make treatment available on a random basis. Especially if one believes that therapy is efficacious, it is difficult not to allow certain patients to receive treatment for research purposes. Several considerations are important in thinking about this dilemma.

One important consideration is the necessity of conducting research, especially that which employs randomized control groups. Such studies (which, in medicine, are referred to as randomized clinical trials) make it possible to assess causality in the most unambiguous way (see, e.g., 36,41,165). Although, from a theoretical point of view, the value of randomized control group studies has long been recognized, there is now some evidence that such studies better enable researchers to detect inefficacious treatments (see, e.g., 94). If less adequate designs are used (i.e., designs not employing randomized control conditions), decision errors may result. Thus, it may appear, perhaps because of the effects of other variables, that the treatment is effective when it is not.

One resolution to the ethical problems presented by needing to withhold treatment is suggested by the nature of the dilemma. If a treatment has not been demonstrated to be effective, then it may not be unethical to deny treatment to some individuals. The treatment, in the absence of empirical data, may not be accomplishing anything. Actual treatment providers (i.e., therapists) may not share this view and, therefore, may be reluctant to participate in this form of experimental research. At the very least, practitioners might want to be able to supervise control group subjects and, in effect, provide partial treatment.

One pragmatic resolution to the ethical dilemma of this research is to provide control group subjects with access to treatment once the experiment has been concluded. This is often referred to as the "waiting list" approach. It is made a more attractive option in some studies (which compare several therapeutic approaches) by offering the delayed control group subjects the form of treatment which the experiment demonstrated as best. Obviously, this option can be provided only when therapy is of a relatively short duration. It is, however, easy to implement when resources are very limited. If only a small group of patients can be given treatment at any one time, a waiting list (established by random assignment) may be practicable (although it might be viable only when patients do not have other treatment options).

Whatever the justification for random assignment to treatment and control conditions, explicit guidelines (established by the Department of Health and Human Services and professional societies) must be followed to protect patients' rights. One central principle of these guidelines is that participation be voluntary, based on patients' (or legal surrogates') "informed consent" (see, e.g., 6). Informed consent procedures require that subjects be informed as to the purposes of the experiment, known risks, data to be collected, and how the data will be used. Subjects also have the right to leave the experiment at any time and, usually, must be told of other treatment resources. The procedures also require that review panels be established to approve research protocols and monitor the conduct of this human research.

Although such procedures may create differential attrition across conditions of an experiment, and perhaps result in only certain types of patients' or treatments' being involved in research, it does not rule out the use of experimental designs. Under a variety of circumstances, individuals will agree to participate in experimental research, and the problems may have more to do with the researchers or therapists involved than with patients. As noted above, until unequivocal evidence is available about psychotherapy and more resources are available for such treatments, it seems necessary to conduct such experimental studies. These studies are critical to providing unequivocal tests of the theoretical hypotheses suggested by basic research. For many therapies, without experimental evidence, there will be no way of resolving questions about alternative explanations for their effects (see 207). In order to carry out such

studies, it may be necessary for the Government to develop special rules for their conduct. Thus, for example, special reimbursement procedures may need to be applied so that treatment and research costs can be separated.

Given the difficulties of conducting in vivo experimental research, it is perhaps not surprising that much of the best controlled research has been laboratory analogs to clinical settings. In these analog settings, psychotherapy is offered to patients who often have less severe dysfunctions than are seen in psychotherapy clinics. However, these patients can be assigned to no-treatment and placebo conditions because the psychotherapy researcher controls the program and because the loss of the therapeutic benefit has less impact. This type of research may yield more rigorous experimental findings, but has low external validity; that is, the patients (often undergraduate students), therapists (often doctoral students), and procedures (more theoretically oriented and less eclectic than is typical) are not representative of those used in "real" psychotherapy (e.g., 162,169). It should be noted that some researchers suggest that this is the best way to conduct rigorous investigations of the effectiveness of psychotherapy and that the innovative techniques developed and tested in such settings can be transferred to more "messy," real world settings (10,135,136). In essence, they argue that the differences between actual and analog settings are not as great as might be anticipated and that generalizability can be demonstrated for these analog studies (at least for some therapies and conditions of treatment).

INTEGRATING FINDINGS FROM PSYCHOTHERAPY RESEARCH

Although the key to evaluating the efficacy of psychotherapy lies in the conduct of well-designed research which uses multiple measures that are both reliable and valid, this may not be sufficient for policymaking purposes. No one research design (including true experiments and program evaluations) will enable the development of definitive information about the effects of psychotherapy, nor will the measures used in any one study be adequate for all purposes. In part, this is because of the current state of theorizing about psychopathology, which encompasses a number of approaches each with different ideas about research. The problems, however, are not only theoretical, but also reflect the limitations of the scientific process with respect to developing unambiguous conclusions on the basis of individual research studies. Given the diversity of criteria against which such psychotherapy research must be evaluated, as well as the divergent theoretical views, methods are required to synthesize, aggregate, or integrate the findings of multiple studies.

Despite the fact that it might be desirable to have a few studies which "settle" the effectiveness question, for the most part, it is necessary to treat cautiously the results of individual studies. Their results must be judged against other research designed to test the same or similar hypotheses. Traditionally, such judgments have been made through literature reviews, where scholars analyze a body of research. These scholarly analyses are reviewed by peers and published so that other researchers can comment. Because of the scientific standards underlying peer review (see, e.g., 39), most such reviews reflect honest efforts to weigh the appropriate evidence.

However, even though the evidence may be reported accurately, it is fairly easy to be selective about the research data one includes. It is rarely possible, especially when considering the host of problems for which psychotherapy has been applied, to include all potentially relevant research. Any researcher who conducts a review makes a number of implicit and explicit choices about what will be included. As well, choices are made about what elements of the studies will be discussed and those that will be ignored; in effect, the author "slants" the review to support a particular hypothesis or viewpoint. Clear criteria are not always provided for judging the

methodological adequacy of the studies included in the review.

To make this process more scientific, or at least more systematic, a number of procedures have recently been developed and applied to assessments of the psychotherapy outcome literature. These procedures, although they have their own limitations and are by no means unanimously accepted, represent attempts to make sense of the burgeoning and often contradictory research about psychotherapy. Two such procedures are discussed below: "box-score analyses" and "meta-analyses."

Box-Score Analyses.—The procedure of "box-score analysis" begins with identification of a population of research studies (see, e.g., 162). Usually, the reviewer establishes certain standards and excludes studies that are not sufficiently rigorous by methodological criteria, or are otherwise not appropriate. The latter category might include studies that are well designed but lack sufficiently reliable or valid outcome measures. It might also include studies that do not have patients assigned randomly to conditions. The difference between this procedure and that used in literature reviews is not sharply defined and is only the greater degree to which criteria are explicitly described in box-score analyses and used to select research for the review.

All studies meeting the reviewer's criteria are culled from some defined set of sources (e.g., journals) and are then sorted into categories. Typical categories might be dysfunction treated, therapy technique, and/or training of therapist. Finally, the reviewer evaluates each study's outcome (e.g., "yes," "no," "equivocal") and tallies scores using the predefined categories (e.g., dysfunction, technique, therapists).

This method of categorization and then tallying of effects is designed to systematize the literature review process. However, it still leaves a great deal of room for individual judgment and typically uses a rather simplistic measure of treatment outcome. Importantly, it does not take account of the strength of findings within particular studies. A box-score analysis does not take account of the methodological rigor of a study, except in global fashion (e.g., by excluding studies without a particular kind of control condition). It is, nevertheless, a useful procedure, and a number of important box-score-type reviews of the psychotherapy literature are reported in chapter 4.

Meta-Analyses.—As described by Smith and Glass (267) and Smith, Glass, and Miller (268), "meta-analysis" is a procedure for integrating research findings (see also 239). It is a more recent, and undoubtedly controversial, set of procedures (see ch. 4). Meta-analysis employs statistical techniques for aggregating data and for determining relationships between causal variables and outcomes. Usually, the first step in a meta-analysis is the precise description of a population of studies on which the analyses will be based. In this respect, a meta-analysis is conducted similarly to a box-score analysis.

In a meta-analysis, however, studies are then coded on a set of variables that are thought to be related to outcomes—the number of these variables is at the discretion of the analyst. The experience of the therapist, the patients' symptomatology, the quality of the research design, and the setting of the treatment are examples of the categories of variables that would be coded in an analysis of psychotherapy. These measures are later correlated with the outcomes (usually quantified) and used as the basis for organizing outcome results in terms of aspects of the studies. In Smith, et al.'s (268) work, an outcome measure for psychotherapy based on the size of the effect (standardized) was computed for almost 500 studies. The studies came from a population of controlled (i.e., comparison group) investigations. Although a global effect size measure, as calculated by Smith, et al., does not differentially weigh studies according to the quality of the measures employed or the design, such factors are controlled by coding each study in terms of instrument and design validity. If, for example, there is a difference between the size of the effects in studies that used poor measures and those that used good measures (i.e., low valid v. high valid), then one knows that a bias of some sort is operating.

Meta-analysis uses systematic methods to uncover trends in the available research literature.

Assuming that there are some good studies and coding criteria can be agreed on, it should prove to be a useful tool in understanding the research on the effects of psychotherapy. A potential problem, however, is that by focusing on available research, one ignores the fact that only research that reports positive and/or statistically significant findings may be published. Although some believe (241) that this could be a problem only when there are a few studies reporting significant findings and when the magnitude of the differences between groups is very small, obviously, the quality of available research is a critical factor in the usefulness of meta-analysis. Other problems, such as the compatibility of studies, are described in detail in the next chapter as part of a substantive review of Smith, et al.'s work.

FINAL COMMENTS

This chapter has described the methodological strategies that can be used to assess psychotherapy. Implicit in this discussion was an assumption that psychotherapy represents a researchable intervention that can be evaluated using scientific criteria of measurement and design. Valid measures of psychotherapy outcome can be developed, and designs that allow relatively unequivocal assessment of psychotherapy can be constructed. Although there are some who maintain that it is not possible to assess psychotherapy because of its inherent complexity, it is not clear what types of information would be excluded by the scientific analyses described here.

Whether the methods described here have been applied appropriately and to what ends they have been used, however, is a different question. Despite the possibility of conducting research on the outcomes of psychotherapy, as is noted in the next chapter, well-conducted research is inadequate to answer at least some of the important questions about psychotherapy (207,277). The reasons for the lack of research are not clear, but probably have to do with both substantive features of psychotherapy and a complex set of pragmatic factors.

These factors include the difficulty of conceptualizing the multiple factors that are part of psychotherapy, as well as attitudinal differences on the part of researchers and therapists. In part, the development of program evaluation techniques may facilitate the conduct of policy-relevant research. In addition, more attention, by researchers, therapists, and the Government to the issues of conducting ethically acceptable controlled experiments, may help to develop better research. Finally, attention to the issue of conclusion-making, based on an analysis of multiple investigations, may lead to better understanding of exactly what is achieved by psychotherapy under what conditions.

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4.
Literature on the Effectiveness of Psychotherapy

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4.
Literature on the Effectiveness of Psychotherapy

Undoubtedly, there is confusion about the effectiveness of psychotherapy; both in the professional and popular literature, a variety of claims have been made about the worth of psychotherapeutic treatments. Although it is not possible here to resolve fully the differences between conflicting viewpoints, the present chapter briefly reviews the major areas of dispute and attempts to apply the methodological principles described in the previous chapter to assess the various claims about psychotherapy. The legitimate disagreements among reviewers are acknowledged, and an effort is made to assess the differences objectively.

SCOPE OF REVIEW

Although no one has classified all the research conducted on psychotherapy, it is clear from even a cursory review of the literature that there is a plethora of research (see, e.g., 208,276). The research ranges from very specific analyses of psychotherapeutic procedures to large-scale program evaluations. Clearly, there are differences in the usefulness of particular types of research for the general question of psychotherapy's efficacy, but it is difficult to differentiate research according to a relevance criterion.

While some commentators have made a distinction between basic and evaluative research (e.g., 66, 268), the utility of any research to answer efficacy questions is usually a matter of degree. Basic research on psychotherapy does not indicate whether or not treatments are effective as practiced, but does provide some understandings about the nature of the intervention. For those concerned with understanding the processes underlying psychotherapy, such data are very important. Conversely, evaluative studies, although they provide direct information about the actual effectiveness of a treatment, often yield equivocal analyses of causality and must be interpreted in conjunction with basic research data. In the present chapter, categorizations are avoided; the analysis includes a variety of research studies which have been considered, by at least some reviewers, to be relevant to understanding the efficacy problem. Several additional caveats should also be noted.

One important issue relating to how one assesses the efficacy literature is the nature of the problems for which psychotherapy treatments are offered. Thus, a great deal of research examines the treatment of very specific nondisabling mental/behavioral problems, and it is difficult to assess the generalizability of this literature to understanding the efficacy of treatments for very severe and disabling conditions. Unfortunately, the problem is even more complex, for much of the psychotherapy literature deals with conditions that are difficult to classify. In part, this problem has to do with the fact that definitions of severity are relative and dependent on the context in which the problem exists. The present chapter attempts to clarify, wherever possible, the degree to which findings about particular problems are generalizable to other mental health problems.

In terms of the scope of the present chapter, the main focus is on a description and analysis of previous reviews of the literature. As discussed in chapter 3, no matter how well conceived and executed, single studies have limited use within a scientific framework. A number of very extensive reviews of the literature (i.e., discussions of multiple studies) have already been conducted, and an effort is made in the

present chapter to describe these reviews as fully as possible. Where appropriate, as part of this analysis, the data and methods of particular studies discussed by these reviews are presented. OTA's decision to focus on reviews has to do both with a goal to best represent the available literature and with the fact that these reviews comprise a focal point for much of the current debate about psychotherapy's effectiveness.

One omission from the literature reviews in the present chapter are popularized summaries of the psychotherapy literature. For example, Gross' recent book *The Psychological Society* has not been included. Gross' treatise is an interesting (although critical) report on psychotherapy, but is primarily a secondary source review of the literature (see also 279,281). Instead of discussing such work directly, the chapter describes the scholarly reviews on which Gross based his book. Not included here either are some of the scholarly literature reviews which have as their primary focus the contrast of one therapy or approach with others. We were centrally interested in reviews that dealt, most generally, with the problem of whether psychotherapy is efficacious under what conditions. The central focus of a review on this question guided OTA's selections.

The reviews discussed below are presented in approximate chronological order according to their appearance in the literature. It is hoped that this ordering will give readers a sense of how research and thinking about effectiveness of psychotherapy have evolved during the past several decades. The chapter also describes the findings of a number of the most important studies on outcome. These descriptions are presented, where necessary, to facilitate understanding of the issues raised by reviewers.

EFFICACY REVIEWS

In the reviews described below, the data reported are reviewed first; then, some of the commentary that has been stimulated by the review is discussed. The methods used by the reviewer to select studies and analyze them are compared against the methodological criteria described in chapter 3. As noted above, the goal is to describe the research that is most relevant to the efficacy question and to assess what appear to be the most reasonable implications of this research literature.

Eysenck's Reviews

The earliest and probably the most controversial review of the psychotherapy outcome literature was conducted by Eysenck almost 30 years ago (70; see also 71,72). Eysenck, in his early review, considered 24 research articles which included 8,053 cases of psychotherapy conducted with neurotic patients. He divided the studies, on the basis of his assessment of their therapeutic approach, into two groups: 1) psychoanalytic therapy and 2) eclectic therapy. The principal criterion for assessing effectiveness was a rating Eysenck developed of improvement following therapy.

The most controversial aspect of Eysenck's report was his comparison of improvement rates in therapy against an improvement rate that he calculated for two no-treatment groups. In the eclectic therapy studies, Eysenck calculated an improvement rate for therapy of 64 percent within 2 years. He compared this rate with what was achieved in comparison groups of patients who did not have therapy. Eysenck found that the no-treatment improvement rate was approximately the same as that achieved in the eclectic therapy studies. The improvement rate calculated for psychoanalysis was lower, approximately 44 percent, and was below that of the no-treatment groups. One source of Eysenck's data on no-therapy improvement was a study by Denker (61) of patients with emotional problems who were treated by general medical practitioners (another source was Landis (153)). Denker's data consisted of insurance company records on 500 individuals who had submitted mental disability claims. He had found that

within 1 year, without receiving any specific psychotherapy, 44 percent had returned to work, and that by the end of 2 years, an additional 27 percent had returned to work.

Eysenck's work unleashed an extraordinary reaction, some of which still affects thinking about psychotherapy research (17,18,20,160, 181,242,268). Much of the reaction has been negative, and, in response, Eysenck and his colleagues have tried to refute claims of his critics and to provide additional data (e.g., 70,71). The debate between Eysenck and other researchers is important to unravel, both because of its centrality in discussions about psychotherapy, and because of its implications for the most important questions about psychotherapy. In terms of Eysenck's original report, three types of problems seem to be important in interpreting his analysis: 1) the nature of the data that Eysenck reviewed, 2) the utility of Denker's comparison data, and 3) Eysenck's interpretation of the data.

The first problem, that of specificity of the data, has been raised by a number of Eysenck's critics (e.g., 160). In essence, these reviewers have claimed that it was inappropriate to generalize very widely about psychotherapy on the basis of Eysenck's data. The most important difficulty is that it is not clear what was done in each of the studies. One cannot determine how much therapy was actually received by patients and what the quality of this treatment was (19). It also seems important to note that the research reported by Eysenck was conducted prior to 1950, at a time when nonpsychodynamically based therapies were only beginning to be used. The generalizability of this work to the types of nonpsychodynamic therapies carried out today, as well as to currently practiced psychoanalytic treatments, is not at all clear (see, e.g., 269).

The second problem has to do with the "control" group data used by Eysenck in his analysis. Eysenck's control data for the effects of treatment were drawn from a nonrandomly selected control group. It is difficult to determine how this nontreated group might have differed from individuals who received therapy. They may have been more or less troubled and dysfunctional than those who sought treatments. Not only are the differences between the control and treatment group subjects not clear, but as noted by Meltzoff and Kornreich (181), neither Denker's (61) nor Landis' (153) data were representative (i.e., the data were not derived from a survey).

Meltzoff and Kornreich (181) also note that the control group data did not really represent no-treatment data. Especially in Denker's study, where patients were diagnosed by general medical practitioners, a form of treatment was provided. Patients were provided "sedatives, tonics, as well as reassurance, and a placebo type of treatment." Furthermore, since none of these patients was severely disturbed to begin with, the return-to-work measure may not indicate an actual remission of the symptoms that first brought the individual to the practitioner.

Finally, a number of commentators have pointed to errors in Eysenck's categorizing of studies and errors in the way he handled data. Bergin (19) reanalyzed the data used in Eysenck's original report and finds a different rate of recovery for psychoanalytic treatment. What Bergin did, among other procedures, was to eliminate cases where individuals left therapy; Eysenck had, instead, counted these cases as failures. Bergin also claims to have found coding errors in Eysenck's original report (e.g., outcome data incorrectly represented). Bergin's reanalysis had yielded an improvement rate of 65 percent for the eclectic therapies (similar to Eysenck's). He notes that improvement rates for all types of treatment may be deceptive, because there was a great deal of systematic variation across personality types, therapists, and clinics. Bergin concludes that global questions of psychotherapeutic efficacy are "silly" and that one must analyze specific therapies for specific problems.

Eysenck acknowledges many of the methodological problems with his data and has argued that the burden of proof to provide evidence should be on those who seek to promote psychotherapy (see 223). He has also updated his original research, and, in later reviews (e.g., 69), cites an additional 11 studies. Although his initial conclusion about the lack of effectiveness of psychotherapy remains, he finds supportive

evidence for at least one type of psychotherapy, a behavioral approach based on the work of Wolpe. It should also be noted that a number of commentators (e.g., 181) have criticized Eysenck for selectively reviewing the literature. By the time of his 1965 paper (which was published along with 17 critiques by prominent researchers), there were at least 70 control group studies of psychotherapy. Most of these were not included in Eysenck's review, although his reasons for not selecting these studies are not clear.

Although Eysenck's work is often interpreted as an indictment of all psychotherapy, as noted above, Eysenck (69) cites evidence as to the efficacy of therapies based on behavior theory. Thus, he describes a study conducted by Lazarus (155) of phobic patients who were treated either by group desensitization (a behavior therapy), group interpretation (a psychodynamic therapy), and a combination of nonbehavioral methods. The results showed a 72-percent recovery rate for the behavior therapy versus a 12-percent recovery rate for the verbal therapy. Eysenck also relies on an unpublished report by Wolpe (the developer of desensitization therapy) in which the results of Wolpe's investigations (122 cases) were compared with reported results from two large psychoanalytic institutions (approximately 400 cases). Wolpe had reported that 90 percent of his cases were cured or much improved versus 60 percent of the psychoanalytically treated patients.

In trying to make sense of the controversy over Eysenck's research, a number of aspects of his work should be highlighted. First, whether one accepts his findings or not, the primary purpose of the original review was to assess the data for treatment of neurotics. Severe mental disability was considered only secondarily in later reports. Second, while Eysenck's critique has been interpreted as a critique of all psychotherapy (and psychotherapy research), his comments are most critical of psychoanalytically derived therapies. He is supportive, as described above, of therapies based on behavior theory. Finally, it should be noted that Eysenck did not find psychotherapy to be harmful and, in fact, found that eclectic therapies were associated with fairly high rates of improvement. The critical question—whether improvement was caused by psychotherapy or resulted from other factors (e.g., spontaneous remission, placebo effects)—is not resolved by Eysenck's work.

Meltzoff and Kornreich's Analysis

According to Meltzoff and Kornreich (181), their work was stimulated by a belief that there had been advances in the development of research on the effectiveness of psychotherapy since Eysenck (who initially published in the early 1950's), but that this work was underrepresented in the literature. Meltzoff and Kornreich, in their book-length discussion of the psychotherapy research literature, made an important departure from earlier reviews and classified studies by methodological adequacy. Groups of studies were formed according to their methodological quality and compared in terms of the positiveness of findings. Meltzoff and Kornreich wanted to come up with a "fair" assessment of what was contained in the available literature.

In their category of "adequate" research designs, they included studies which used a control group condition and adequate outcome measures. In their "questionable" research design category, they included studies with control groups that may not have been comparable and/or used poor outcome measures or analysis procedures. They also included in this latter category studies that used analog designs. The results of the studies they assessed were categorized as either "positive," "negative," or null. Since most studies included multiple outcome measures, their subdivision of outcomes was a judgment of the balance of statistically significant findings. Their analysis included approximately 100 control group studies.

According to Smith, et al. (268), who tabulated the results of Meltzoff and Kornreich's review, 80 percent of the controlled studies they reported yielded positive results, while the other 20 percent had null or negative results. There was also a positive relationship between research quality and positive findings. Thus, 84 percent of Meltzoff and Kornreich's adequately designed studies yielded positive results about

the effectiveness of psychotherapy, while only 33 percent of the studies of questionable design yielded positive results.

Meltzoff and Kornreich (181) also assessed the degree to which results were "major" or "minor." The studies categorized as "adequately designed, with major outcomes" varied on a number of dimensions. These studies included research such as Grace, Pinski, and Wolff's (107) assessment of group therapy for individuals with ulcerative colitis. In this study, patients in the treatment group received psychotherapy to alleviate stress. Over a 2-year period, it was found across a variety of "hard" criteria (e.g., operations required) that those who received group therapy were less likely to require medical treatment than those who did not (there was a lower morbidity rate for therapy patients, as well).

A different type of study included by Meltzoff and Kornreich (181) was Morton's (190) study of college students who were referred to psychotherapy for severe personal problems. A randomized control group design was implemented by having some subjects placed on a waiting list. Raters, who were blind to information about the students' treatment (they were the counselors who made the actual referral), talked with students after 3 months. On a number of measures, including those that assessed cognitive and behavioral variables, 93 percent of the treatment group students and only 47 percent of the control group students showed improvement. The students who received psychotherapy were considered to have received a major benefit.

Although it is difficult to systematically analyze the types of studies included in Meltzoff and Kornreich's (181) review, most of the studies they report appear not to be of severely disabled patients. In fact, almost all the studies in which there were adequate designs and major positive benefits were studies in which the problems were relatively specific and the patients were not institutionalized. The reason for this may be connected with the problems of doing control group research, as well as with the nature of psychotherapy. As noted in chapter 3, it is easier to conduct well-designed control group research when problems are specific and the potential harm of withholding treatment is not severe. The hypothesis must be left open that the more general and unspecified the problem, the less efficacious is psychotherapy.

This point has been made by Malan (168) about Meltzoff and Kornreich's work (181). Malan noted that, although he agreed with the Meltzoff and Kornreich conclusion about the beneficial effects of psychotherapy, its generalizability for a variety of patient groups was not clear. There is also a problem, in generalizing from Meltzoff and Kornreich, of not knowing what specific techniques work with what specific problems. Although their methodological focus is useful for assessing hypotheses about the relation between research quality and outcome, it obscures the synthesis of findings about specific treatments. From a more optimistic perspective, it is comforting that their positive findings rate is a bit higher than that of Eysenck, and further, that these positive results were obtained in well-designed studies.

Bergin's Reviews

Bergin's 1971 review (19) of psychotherapeutic effectiveness was described briefly above in reference to his critique of Eysenck's work. Bergin's analysis is important (see also 18,21) because, unlike earlier critics of Eysenck, he actually examined the studies used in the original report (72) and recomputed Eysenck's treatment remission rates. Bergin used different assumptions and procedures for establishing improvement rates, and, as noted above, he found a discrepancy in Eysenck's analysis of psychodynamic therapy. In addition, Bergin (19) calculated a different remission rate for no-treatment (based on data not discussed by Eysenck), and found that only about 30 percent of the patients would have recovered had there not been psychotherapy. Within the framework of Eysenck's nonexperimental data base, there are limits to one's certainty about any conclusions.

Bergin (19), in part to remedy this problem, reviewed 52 studies of psychotherapy outcome. He claimed that these studies represented a "cross-section" of the available literature (see 276). Approximately half of the studies had control groups, and Bergin categorized the studies on the basis of a number of variables, including

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the adequacy of the research design, duration of therapy, type of therapy, and therapist experience. Studies were judged and cross-tabulated in terms of the results of the therapy: "positive," "negative," or "in doubt."

Of the 52 studies, Bergin (19) judged 22 to be positive (indicating psychotherapy was effective), he judged 15 as having negative results, and 15 were judged "in doubt." Bergin concluded that "psychotherapy, on the average, has moderate positive results." Typical of the studies Bergin classified as positive was Gottschalk, Mayerson, and Gottlieb's (106) study of brief therapy. Using a no-treatment control group design, Gottschalk, et al. studied neurotics who were given emergency outpatient therapy. The treated patients improved significantly more than the controls on a variety of behavioral and cognitive measures. Another positive study cited by Bergin was Vorster's (288) investigation of neurotics treated by eclectic therapies. Vorster found the treatment group significantly improved, although this study's design did not employ a randomized control group.

In a more recent extension of Bergin's (19) review, Bergin and Lambert (21) discuss additional evidence to support their hypothesis that psychotherapy is efficacious. They also reply to the criticism (e.g., 222) of Bergin's original work. B rgin and Lambert cite as one of the best examples of more recent research a study by Sloane, Staple , Christol, Yorkston, and Whipple (266). That study used 90 outpatients, of whom two-thirds were neurotic and one-third had personality conduct disorders. The patients were randomly assigned (they were also matched with respect to sex and severity of symptoms) to short-term analytically oriented therapy, behavior therapy, or a minimal treatment wait-list group. Treatment outcome was assessed after 4 months. On average, all groups improved significantly across a set of target symptoms, but the two therapy groups (analytically-oriented and behavior) improved significantly more than the minimal treatment wait-list group. No significant differences were found in outcomes between the actual therapy groups.

Bergin and Lambert (21) conclude that, "Psychoanalytic/insight therapies, humanistic or patient-centered psychotherapy, many behavioral techniques and, to a lesser degree, cognitive therapies rest on a reasonable empirical base." They contend that these therapies achieve results that are superior to no-treatment and to various placebo treatment procedures. Bergin and Lambert also assert that even if one accepts Eysenck's "two-thirds remission within 2 years" formula, there is still positive evidence for psychotherapy. This is because treatment effects of the same magnitude are frequently obtained in 6 months or less in formal psychotherapy, ". . . a considerable evidence of therapy's efficiency/efficacy over no treatment." In effect, psychotherapy hastens the recovery period and reduces both suffering and the effects of disability.

Rachman's Critique

As can be seen from the above two reviews, the early 1970's was a fertile time for psychotherapy assessments. Rachman (222), a frequent collaborator of Eysenck's, provided another review which served, in part, to refute Eysenck's critics. Rachman, in particular, responded to Bergin's (19) reanalysis of Eysenck's data and to the dispute about what studies should be included in a review of psychotherapy efficacy. Rachman, in analyzing Bergin's work, disallowed a number of studies (5 out of 14), because the subjects were delinquents or had psychosomatic complaints, rather than being neurotic. If Rachman's analysis had been extended to Meltzoff and Kornreich's (181) review, the same problem would have existed.

Rachman (222) analyzed 23 studies which he considered to be relevant for assessing the efficacy of "verbal" psychotherapy (i.e., therapies based on conversation between therapist and patient—primarily, humanistic and psychodynamically based). Of these studies, Rachman found that only one provided tentative evidence of the effectiveness of psychotherapy. Five studies produced negative effects, where treatment group results failed to exceed control groups or base-line remission rates. It is important to note that Rachman excluded 17 studies for a variety of reasons, only 2 of which showed negative effects. The reasons for excluding the 15 studies that showed positive results varied, and in-

cluded the use of unacceptable outcome measures (e.g., a projective test), the exclusion of subjects who left therapy before treatment was completed (which Rachman said inflated improvement rates), and inconsistency across outcome measures (i.e., some measures showed positive effects, while one or more measures showed negative effects). The two negative studies were excluded because randomized control group conditions were not employed.

A number of commentators (e.g., 257,268) have reviewed Rachman's (222) critique and analysis, and they claim that he used inconsistent standards for evaluating evidence. In particular, they assert that Rachman used criteria for assessing the verbal psychotherapies that were different from the criteria he used for the behavioral therapy experiments. Smith, et al. (268) have criticized Rachman because he selectively chose studies to review. They indicate that many more studies were available to Rachman than he included, and add that it cannot be inferred from his discussion why particular studies were not referenced. Smith, et al. also criticize Rachman for "ex post facto" exclusion of studies based on methodological criteria. They argue that he should have compared the good and poor designs to determine whether or not they yielded different kinds of conclusions, as Meltzoff and Kornreich (181) did in their analysis.

Luborsky, Singer, and Luborsky's Review

In a more current assessment, Luborsky, Singer, and Luborsky (162) tried to evaluate all reasonably controlled studies of psychotherapy on "real" patients (i.e., analog studies were excluded). Luborsky, et al. examined available studies that had assessed therapy for treating recognized problems of individuals who sought psychological treatment. Many of these studies were ones that had been used by Bergin (19) and by Meltzoff and Kornreich (181). Although Luborsky, et al.'s definition excluded some behavioral research (primarily because it was not conducted in actual clinical settings) and some patient populations, their scope was wider than that of other reviewers.

Each of the studies Luborsky, et al. (162) assessed was categorized on a number of dimensions and then summarized in a "box-score" analysis (see ch. 3). One central dimension was research quality, which was determined on the basis of 12 criteria. The criteria included the study's method for assigning subjects to comparison groups, the procedures for dealing with premature therapy termination, experience of therapists, tailoring of outcome measures to therapeutic goals, and the adequacy of the sample size. Luborsky, et al. summarized the codings by "grading" each study on a 5-point scale of research quality. They then categorized results in terms of whether there were significant differences showing better effects for the treatment group (+), the comparison group (−), or no significance between the groups (0).

Luborsky, et al. (162) found 33 studies in which psychotherapy treatment groups were compared with no-treatment control groups. Of these, 20 studies yielded psychotherapy treatment groups which were significantly better off than control groups, and 13 showed no difference. Luborsky, et al. did not find any instance of a control group being better than a psychotherapy treatment group. They found 19 studies in which schizophrenic populations (i.e., severely disabled individuals) were studied. Of these, 11 yielded results in favor of the psychotherapy condition, and 8 yielded no differences. Luborsky, et al. also found that in a majority of comparisons (13 out of 19), there were no significant differences in outcomes to patients between behavior therapy and other psychotherapies. While the reviewers note the positive research findings on behavior therapies, they suggest the need for more studies in which behavior therapies are applied to patients who have generalized maladjustments.

Luborsky, et al. (162) conclude that control studies find that patients who go through psychotherapy do, in fact, gain. Because they used "box scores" where effect sizes were not estimated (see 221), it is not possible to determine how strong these effects will be. However, according to Smith, et al. (268), there has been no published substantive criticism of Luborsky, et al. and (as is described below) Luborsky, et

al.'s general finding has been substantiated by other reviews.

NIMH Synthesis

Perhaps the most comprehensive review of psychotherapy outcome research has been conducted at the National Institute of Mental Health by Parloff and his colleagues (208). This review provided an assessment of psychosocial treatments for mental disorders and was prepared for the Institute of Medicine (National Academy of Sciences) as part of that Institute's work for the President's Commission on Mental Health (219). The Parloff, et al. review differs from earlier works in that it uses a more narrowly defined treatment and is organized primarily according to disabling conditions. Thus, for each of a variety of mental disorders, the available evidence as to the effectiveness of psychotherapy was assembled and analyzed. The reviewers tried to make some general statements about psychosocial therapies (psychotherapies that do not use drug treatments) and how these therapies are affected by other variables, such as therapist and patient characteristics. Parloff, et al.'s work is very extensive, so a detailed summary is not attempted here; only the work's general conclusions are described below.

Parloff, et al.'s (208) general finding (see also 207) was that "patients treated by psychosocial therapies show significantly more improvement in thought, mood, personality, and behavior than do comparable samples of untreated patients." These reviewers found that spontaneous remission rates developed from separate samples provide evidence that psychosocial treatments seem to result in greater improvement than would be expected without psychotherapeutic treatment. Their finding is supported most clearly for disorders such as "anxiety states, fears, and phobias." Parloff, et al.'s relatively positive assessment, however, was accompanied by a number of caveats. For many disorders, psychotherapy alone (i.e., without other treatments such as drugs) has not been demonstrated to be effective; nor does it appear to be effective for particular populations (e.g., children). Finally, the review notes, although effectiveness evidence exists for a number of disorders, only some types of therapies (with particular therapists) may be effective.

The central aspect of Parloff, et al.'s (208) review was a summary, by each psychopathological condition, of the available treatment research evidence. To appreciate the complexity of this task, consider their discussion of severe mental disorders such as schizophrenia. For these disorders, Parloff, et al. found that individual and group psychotherapy provide an ambiguous amount of improvement for institutionalized patients; however, in conjunction with drug therapies and other psychological treatments, they appear to have important effects. The authors note that ". . . drugs do not teach individual social and interpersonal skills." For such hospitalized populations, however, Parloff, et al. found considerable evidence that a specific type of therapy (behavior based) improves social adjustment (on a variety of social and interpersonal variables). They also found that the return of severely disturbed patients to their community had positive effects on treatment outcome, although this finding was limited to patients with certain interaction skills, and under the condition that the patient returns to a "good" family situation.

One important feature of the Parloff, et al. work, both as it was presented in the original form (208) and as it was summarized by the President's Commission on Mental Health (219), is that this report examines the evidence for alternative hypotheses about the effects of psychotherapy. In particular, Parloff, et al. found a variety of reported spontaneous remission rates; that is, different improvement rates are obtained for disturbed patients who do not receive therapy (see, e.g., 280). Despite the fact that patients improve to some extent without therapy, however, the hypothesis that such spontaneous remission effects account for changes in treated patients cannot be validated. Parloff, et al. (208) report that studies which have been controlled for placebo effects find that changes associated with treatment are greater than those associated with the placebo. Unfortunately, there is an inherent problem in theoretically identifying the nature of a psychotherapy placebo (see ch. 3) and separating it

from the effects of the treatment, so these results must be regarded as tentative.

Parloff (207), in a discussion of the review (208), calls for the development of clinical trial research to assess more widely and systematically the effects of psychotherapy. While Parloff adopts a relatively positive view of the effects of psychotherapy, he finds the current research literature limited. He proposes the use of experimental designs to assess the specific conditions (including aspects of the treatment, therapist, and patient) under which therapy procedures yield particular outcomes. Although one view of such clinical trials would be to test different theories of psychotherapy, an implication of Parloff, et al.'s work is that other factors need to be incorporated in the design of these trials.

One additional note about Parloff, et al.'s (208) findings has to do with their review of behavior-based therapies. Parloff, et al., along with Eysenck, Rachman, Bergin, and to some extent, Meltzoff and Kornreich, report clear-cut evidence that behavior-based therapies are effective treatments for specified conditions. Although its generalizability has not been established across the range of disorders, this finding suggests one important focus for future research.

Smith, Glass, and Miller's Meta-Analysis

The final review considered here, that by Smith, Glass, and Miller (268), has the potential to be as controversial as Eysenck's original work, and may stimulate an entire new set of psychotherapy outcome analyses. The meta-analytic methods used by Smith, et al. (see ch. 3) are at the heart of the controversy about this work. A preliminary published report of the meta-analysis of 375 control group studies of psychotherapy (267) has already stimulated a variety of critiques (e.g., 73,90,218). Smith, et al.'s goal was to determine the state of knowledge about the effects of psychotherapy, using systematic scientific procedures. Their meta-analytic procedure was used to integrate the findings of a disparate set of studies on psychotherapy. In addition, each of the studies in the sample was classified to enable determination of the factors that influence outcome findings.

In order to conduct their review, Smith, et al. (268) tried to include all controlled studies of the effectiveness of any form of psychotherapy. Controlled studies were defined as investigations where a treatment group received psychotherapy, and another group which was comparable did not receive treatment. In some cases, receiving treatment meant a placebo or alternate form of psychotherapy. Smith, et al. considered a study to be relevant if the study investigated therapy that involved: 1) patients who were identified as having an emotional or behavioral problem, 2) treatment that was psychological or behavioral, and 3) therapists who were identified professionals. The definition resulted in the analysis' including a variety of investigations of treatments applied to problems of different degrees of severity. Smith, et al. excluded some types of treatment, including those in which psychoactive drugs were used (these studies were analyzed separately), those which were primarily educational, and those which were not, essentially, psychosocial treatments. They surveyed a great number of sources to identify studies, including published journals, dissertations, and clearinghouses that identify professional publications. Their final sample included 475 controlled studies of psychotherapy.

Probably the most important aspect of Smith, et al.'s (268) analysis was the way they classified the research studies. Each study was coded on a number of dimensions related to the characteristics of the researcher, therapist, and the patient (including diagnosis); most importantly, the studies were classified on a series of methodological criteria. The methodological categories included the nature of the assignment to conditions (e.g., random v. matching) and such factors as experimental mortality and internal validity (see 41,165). Smith, et al.'s principal dependent measure was a standardized score for the size of the effect. From the data reported in each study, Smith, et al. calculated scores for the size of the effect; to allow comparison across studies, they computed each as a standard score. Studies often included more than one outcome measure, so Smith, et al.'s analysis treated each variable as a separate case. Thus, from the 475 studies Smith, et al. analyzed, they found 1,766 effect size measures. In addition, they

coded outcome measures in terms of the type of measure, instrument, and its reactivity (i.e., susceptibility to social desirability, faking, etc.).

Smith, et al.'s (268) principal finding was that, on the average, the difference between average scores in groups receiving psychotherapy and untreated control groups was 0.85 standard deviation units (i.e., the effect size difference was 0.85). According to Smith, et al., this average effect size can be translated to indicate that the average person who receives therapy is better off than 80 percent of the persons who do not. They found little evidence for the existence of harmful effects of psychotherapy (i.e., very few cases where the mean of the control group was higher than the treatment group). Smith, et al. found some significant differences across the types of therapies whose effects were studied (the range was 0.14 to 2.38), but these effects are confounded by variables such as patient and therapist characteristics which were distributed unequally among the therapies. Finally, their methodological categories proved not to correlate with effect sizes; thus, for example, the better designed studies did not yield less positive findings.

OTA has had an opportunity to review Smith, et al.'s (268) coded data of the 475 studies. A sample of studies was drawn, and their reliability was checked by comparing our blind codings with their original data. In particular, effect size ratings for a dozen studies were recomputed. This analysis indicated that the Smith, et al. codings were both easily replicable and apparently reliable. Their validity is more difficult to establish.

A key question is whether the effect size scores calculated by Smith, et al. (268) are a valid measure. There are reasons to suggest that their average effect size is inflated, but there are also reasons to suggest that it is conservative. Inflation in the effect size measure may have come about because only well-designed studies were included in Smith, et al.'s analysis. Thus, to the extent that the control group studies are completed only for successful psychotherapies or for a limited range of psychotherapy treatments, the sample may be biased positively when compared to psychotherapy research. It is difficult to determine the exact nature of the bias that may result from this problem. There are also some aspects of Smith, et al.'s procedures which suggest that their average effect size measures may be conservative. Smith, et al. considered placebo treatments, as well as actual forms of therapy and counseling, in their treatment group means. These are all not legitimate therapies, and, in fact, when separately analyzed, showed lower effectiveness as compared to actual psychotherapy.

Most critics of Smith, et al. (268), in particular Eysenck (73), have disputed the meta-analysis approach (actually, the published critiques refer to Smith and Glass (267)), because it lumps together too many things and includes studies of poor design, as well as good design. This criticism is potentially justifiable, but a close review of Smith, et al. indicates that they control for this problem by their classification of studies according to methodological criteria. Not only do they start with a group of relatively well-designed studies (in terms of their definition of controlled psychotherapy research), but they provide analyses of the relationship between effect size and classification variables such as internal validity (a measure of the quality of the research design—see 41). The correlations are close to zero, indicating that studies that use randomized control group designs find the same effect as studies that use poorer designs. There may still be a sampling problem in that the published literature only reports well-controlled studies, but this problem is different from that on which most of the criticism of Smith, et al.'s meta-analytic procedures is based.

At this point, it is difficult to know how to utilize the results of Smith, et al. (268). Their work is certainly more systematic than that of other researchers; however, their methods are not yet widely accepted and their work has not been available long enough for comprehensive reviews to appear. Perhaps, the most important limitation of such meta-analytic research is that it relies on the existing literature. It seems clear that much better research on psychotherapy can be done, and a more definitive meta-analysis may have to await the completion of this new research.

DISCUSSION

If one considers only the trend of findings reported by scholarly reviews and analyses of the psychotherapy outcome literature, it would appear that psychotherapy treatments, under some conditions, have been shown to be efficacious (see, e.g., 287). Although the evidence is not entirely convincing, the currently available literature contains a number of good-quality research studies which find positive outcomes for psychotherapy. There are also a large number of studies which report positive effects, but whose methods or generalizability are difficult to assess. The quality of the evidence varies in terms of the nature of the treatment and the patient's problem. One difficulty with the available literature is that, while a host of factors have been identified as important to psychotherapeutic outcomes, the role of these factors (e.g., characteristics of the patient, therapist, setting) has not been assessed in any definitive way.

Frank (85), for example, in commenting on the state of psychotherapy outcome research, reports a disappointment that research has not produced more specific understandings of what occurs during therapy. While he supports the conclusion that research demonstrates that psychotherapy is somewhat better than no therapy, he also finds that much of the literature indicates equivocal outcomes. One reason for these equivocal findings, according to Frank, is that the personal qualities of the therapist and patient and their interaction may be more important than the therapeutic method. Because these factors vary so widely and are not typically controlled for, variability is built into psychotherapy studies, making it more difficult to detect significant treatment effects. Frank urges more research that clearly assesses these components of therapeutic treatments.

It is likely, given the theoretical potential to conduct such research on the ingredients of psychotherapy, that a more extensive research literature could be developed (see also 207). It probably means that psychotherapy evaluations, unlike evaluations of new drugs, need to pay equal attention to the conditions of treatment and the treatment per se. Research done on psychotherapy in settings different from actual practice will probably have limited utility and will represent only one stage of a testing program. Although it would be hoped that psychotherapy research could lead to better understandings of the role of therapist characteristics and skills, it might only be possible to assess how these factors interact with treatments as they are actually delivered. Finally, it should also be noted that some forms of potential outcome research, such as program evaluations, do not seem to have made a substantial impact on the literature (cf. 181,212). While program evaluations have been done of a variety of process factors in mental health delivery systems, these studies have less frequently measured outcomes using experimental designs. In part, this reflects the developing nature of the methods for program evaluation (see ch. 3) and the slow shift to the funding of such research. It is possible that this situation will change with increased pressures for accountability and with increased emphasis on understanding complex sets of psychotherapy technologies.

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Methods for Assessing the Cost Effectiveness and Cost Benefit of Psychotherapy

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Methods for Assessing the Cost Effectiveness and Cost Benefit of Psychotherapy

The preceding chapters illustrate some of the complexity of assessing the outcomes of psychotherapy. Although such assessment is undoubtedly difficult, it nevertheless seems possible to evaluate psychotherapy using scientific methods of analysis. Assessing the costs and benefits of psychotherapy, and developing comparisons among effects, costs, and benefits—that is, conducting cost-effectiveness and cost-benefit analyses (CEA/CBAs)—is a natural next step in this research process. To conduct such CEA/CBAs encourages the explicit analysis of the resources used in psychotherapy and the effects (positive and negative) of different resource allocation decisions.

Potentially, CEA/CBA is a set of procedures that can aid in decisionmaking about the use of psychotherapy. Increasingly severe economic constraints, as well as the call for an expansion of mental health services (see 219), make it especially important to understand how the effects of psychotherapy are related to the resources it consumes. There are a great number of competing pressures for health care resources, and, ideally, CEA/CBA applied to psychotherapy can serve as an aid to resolving these conflicts. Although the application of CEA/CBA is, perhaps, not as well developed in psychotherapy as in other areas (see 203), the current policy controversy about mental health treatments has created increased interest in its use. The present chapter describes the methods underlying the conduct of CEA/CBA in psychotherapy and indicates both the potential for its use and the problems associated with its application to mental health treatments.

It is important to note that many of the issues of CEA/CBA of psychotherapy are closely related to the problems of assessing efficacy. Economic analyses of psychotherapy are dependent on the quality of research data pertaining to psychotherapy's effects. The unique problems of CEA/CBA of psychotherapy have to do with the difficulty of comprehensively assessing and valuing the effects of psychotherapy (see 98, 157,206). Such effects include the reduction of pain and suffering and enhancement of "well-being." These effects are very difficult to measure and even more difficult to value in monetary terms. This difficulty may result in CBAs of psychotherapy consistently undervaluing the benefits of psychotherapy. CEA, in contrast to CBA, does not require that such effects be expressed in monetary units, but does rest on the premise that they can be valued in some manner. Such difficulties restrict the usefulness of cost analyses.

The methodological issues involved in the development of CEA/CBAs of psychotherapy are described in the following sections. For a more complete description of CEA/CBA, the reader should consult OTA's main report on CEA (203).[1] The present analysis begins with a discussion of the methods for assessing costs, and that is followed by a discussion of the methods for assessing benefits. In the third section, the actual conduct of cost analyses is described. The discussion below emphasizes the relationship of CEA/CBA to efficacy assessments and the usefulness of CEA/CBA in aiding policymaking about psychotherapy.

[1]In addition to the main report of OTA's assessment of CEA, *Background Paper #1: Methodological Issues and Literature Review* describes, in detail, the use of CEA/CBA methods.

COST ASSESSMENT

For the purpose of CEA/CBA, the cost of psychotherapy may be conceptualized as the value of various resources consumed in the process of therapy (see 6,157,173,237). These costs include the value of a variety of resources used to provide treatments, such as the value of the therapist's time and the value of the use of the treatment facility. They may also include the value of the patient's time. Inevitably, decisions are required about whether to include or exclude costs and how to value resources appropriately. These decisions often reflect the subjective judgments of different interest groups involved in the cost analysis (see 203,277) and the purposes for which the analysis is being conducted. Just as different theoretical perspectives on psychotherapy may result in different measures of therapeutic effectiveness, so too may different perspectives yield alternative ways of defining therapy costs.

General Considerations

There are a number of general considerations relevant to assessing the costs of resources used in psychotherapy. Some of these general issues have to do with the data that are used in developing cost estimates. Others concern the use of procedures to transform available data into useful indices of resources consumed. In a later section, the application of these procedures to the collection of specific cost data is described.

Accounting Methods.—The most readily accessible source of data to assess the costs of psychotherapy are the entries in the accounting records of a treatment facility (e.g., a practitioner's office, a mental health center). Because they are usually highly organized and accessible, accounting records give a ready definition and a reasonably reliable record of the moneys required to deliver therapy. These direct costs are the ones that are most often referred to in simple cost analyses of psychotherapy. A caveat that should be noted, however, is that the costs that result from accounting tabulations may not include all or even most of the resources used by therapy. Costs from such tabulations, therefore, may not be an accurate reflection of the resources consumed.

In addition, a number of costs may not appear in accounting records. Thus, for example, volunteered time and donated facilities may play a large, but unaccounted for, role in the provision of psychotherapy. Therapies that attract more volunteers owing to location or type of patient treated may appear less costly than therapies located in areas where volunteers are scarcer (e.g., in impoverished neighborhoods) or than therapies treating less "attractive" persons (e.g., sex offenders compared to children who are autistic). Resources contributed to therapy by the family or others connected with the patient may also be considerable, but would not be recorded in an accounting system.

Opportunity Cost.—A more correct approach to assessing the costs of psychotherapy than using accounting costs involves the opportunity costs concept. In using opportunity costs, one calculates the value of a resource as if it were applied to a best alternative use. For psychotherapy, determining opportunity costs allows one to consider more completely the value to society of various resources consumed by psychotherapy treatments and significantly alters the analysis (25,40,283,305). Consideration of opportunity costs avoids problems created by different accounting procedures and, at least conceptually, the problems due to the use of volunteers and donated facilities.

Discounting.—The actual calculation of opportunity costs involves the use of discounting procedures, which provide a present value of future costs. Thus, if costs will be incurred at a future time, they will appear to be less costly if valued in the present. The discount rate is usually based on the prevailing interest rate. Probably, discounting procedures are more important for properly valuing benefits (which are more likely to occur over time) them for valuing costs. Obviously, though, discounting procedures are necessary when dealing with costs such as those for a treatment facility.

Methods for Cost Assessment

The valuation procedures used to assess the most common cost elements in psychotherapy are considered in this section. The use of opportunity cost procedures and the complete assessment of relevant cost elements are emphasized. Also discussed is the assignment of costs to specific treatment.

Personnel Costs.—The cost of personnel is usually the largest therapy cost (between 60 and 80 percent, according to Levin (157)). Personnel costs can usually be estimated simply by multiplying the sum of salaries and benefits of the personnel employed in the therapy process by the time involved. Personnel may include professional therapists and paraprofessionals, as well as support staff. In cases where salary data are difficult to analyze or where time is volunteered (e.g., a therapist donates time in a teaching facility), personnel costs can be estimated by other means. Thus, for example, hours of therapy can be multiplied by standard hourly salary figures.

Several "time accounting systems" have been specifically developed to collect personnel cost data in mental health treatment facilities (30, 150,205). Some of these data are available in accounting records, but oftentimes they are not available in sufficient specificity (i.e., broken down by tasks). In the time accounting system described by Carter and Newman (30), all personnel, including volunteers, patients, and salaried staff, were required to keep daily records of time spent in therapy-related activities. This information formed the basis of a cost-accounting system.

Facilities and Equipment Costs.—Also included in the valuation process are the costs of operating facilities, most correctly expressed in terms of market rent, plus overhead such as cooling and building maintenance costs. Market rent is used in order to value the resource in terms of its "opportunity cost," discussed above. This procedure corrects for the problem of valuing donated facilities and for valuing government facilities which may be leased (to the treatment agency) at artificially low rents. The procedure would include the estimated value of donated or loaned rooms and buildings. It would also adjust the rent or mortgage to assess their true, rather than paid-for, value.

Costs for the equipment and materials used in psychotherapy also have to be calculated. These costs, which are usually available in accounting records, include such resources as office supplies, food, laundry, and telephones. They may also include the value of such specialized materials as psychological tests and computer scoring services. Usually, the difficulty with assessing the cost of these specialized resources is the lack of records as to their use.

Other Costs.—In addition to personnel and facilities/equipment costs, some analysts include the costs of the patient's time and/or the costs of therapy to a patient's family. Although such costs can, alternatively, be considered as a negative benefit (i.e., subtracted from benefits), it is sometimes useful for them to be included with the actual costs of providing therapy. Thus, for example, when a patient loses time from work activities or when an employer has to give release time to a patient for therapy, it may be useful to value the patient's time and consider it as a cost.

Assessment of the costs of the patient's time is similar to the way other personnel costs are calculated. Usually, an accounting can be be made of the amount of time that the patient spends in therapy. Assuming that this time could be used productively, it is multiplied by the patient's salary. Parallel calculations can be made for family members who become involved in the therapy or are required to spend time with a patient as a result of therapy. One problem with this aspect of the costing process is the problem of equity, since some groups of people earn more than others and, thus, their time could be valued more highly.

While a number of other costs could be included, such as the psychological cost of therapy, there is no agreement as to whether they should be included or how they can be valued (see, e.g., 126,172). The development of psychological cost measures would involve the assessment of the suffering or pain of a patient as a result of therapy. However, such costs, as

well as the costs of mental illness are usually considered as a reduction in the benefit of a treatment.

Specifying Costs.—For a simple CEA or CBA, the sum of personnel, facilities, equipment, and materials costs may be adequate. For an analysis which seeks to identify the procedures, therapists, patient types, or settings that consume more costs than others, however, procedures have to be devised for assigning costs to individual components of therapy. Analyses of this type may become even more complex when distinctions have to be made among various types of costs (157,248).

Cost data that can be used for analyses of the resources used for specific components of therapy can be collected either during therapy or after it is completed. If collected after therapy, the analysis requires summary data to be broken down into different costs corresponding to therapy components. Because many assessments of psychotherapy have been introduced only after a therapy program has begun, the breakdown method has received considerable attention. Analyses that examine the cost effectiveness of treating individual patients may divide overhead costs such as salary, rent, and basic supplies equally among patients, according to the amount of their therapy (e.g., number of therapy hours).

Some cost assessment procedures assign therapist costs to patients according to the amount of time that therapists spend working with different patients; then, the costs of overhead, personnel, and other resources are divided equally across patients (e.g., 30,149,199,305). To compare the relative cost, cost effectiveness, or cost benefit of different components of therapy programs, the difference in direct costs of the various treatment components is calculated. In such analyses, the overhead costs that are the same for each component are ignored. These direct costs are then used in CEA/CBAs, as described below.

Discussion of Cost Assessment

Despite some longstanding interest in assessing the cost of psychotherapy (e.g., 76) and the apparent ease of applying standard valuation methods to psychotherapy, the assessment of psychotherapy's cost is not widespread, nor has such assessment been evaluated. Certainly, techniques for the measurement of effectiveness are much better developed than those for measuring costs. Most psychotherapy research—perhaps 95 percent—neglects the cost of the treatment. The implications of this neglect for CEA/CBAs of psychotherapy are important to consider (16). It should be noted for example, that no standards as to what should be included in cost analyses have been developed. More importantly, the available studies may reflect a narrow range of treatments (probably those treatments which are either very costly or very low in cost). In addition, cost data may be derived from existing studies even if not explicitly included in the original analysis. Usually, the available information on numbers of therapists, patients, and treatment length is detailed enough for rough cost estimates to be made. Combined with secondary analysis procedures, the availability of these data may provide a promising opportunity for further R&D of psychotherapy CEA/CBAs.

BENEFIT ASSESSMENT

The valuation of "benefits" resulting from psychotherapy which can be used in CBA, unfortunately, is even more problematic than cost assessment (e.g., 140,237). The translation of effects into benefits is necessary to provide a common metric for comparing resources used with effects. The problems of benefit assessment have to do with selecting effects to be valued and determining appropriate ways of translating effects into benefits (i.e., valuing effects in monetary terms). Below, these problems are discussed in terms of the types of benefits produced by psychotherapy—to patients, to those associated with patients, and to society.

Benefits to Patients.—The most obvious benefits of psychotherapy accrue directly to the patient, although different effects of therapy have somewhat different problems attached to their valuation. Thus, while a change in earnings may be valued in a relatively straightforward way, other benefits of psychotherapy, such as a reduction in pain or anxiety, are more difficult to measure and value. Because these intangibles are so difficult to quantify in monetary units, any CBA of psychotherapy may undervalue the benefits. It is also possible that some of the negative benefits of psychotherapy (perhaps, the effects of stigmatization of being a patient) will not be calculated. To avoid this problem, many studies separately analyze tangible and intangible benefits, comparing only tangible benefits to costs.

From the perspective of some economists (e.g., 251), it is argued that a patient's willingness to pay for psychotherapy reflects its value to the patient. Thus, that which patients are willing to pay for therapy is the net value of the expected health, social, and economic benefits, minus the psychological suffering, lost time, and personal costs that are incurred as a result of undergoing psychotherapy. Underlying the use of the "willingness-to-pay" concept is the assumption that the patient has made an informed decision to pay the required fee. However, the willingness-to-pay assumption, while theoretically possible, assumes that the mentally distraught person has made a rational decision. Since such individuals seldom have access to clear information about psychotherapy's costs and benefits, this assumption is probably unlikely and has not really been applied.

Some economists, for example, Weisbrod (296), recognizing the inherent problem with applying the willingness-to-pay criterion to psychotherapy, have proposed more direct assessment of patient benefits. In Weisbrod's research, the variety of effects of treatment are identified and, to the extent possible, transformed into monetary values. For some effects, such as improved quality of life or absence of mental illness, no pecuniary value can be assigned. These factors are therefore not included in an assessment of benefits, but can be contrasted with the costs of particular therapies.

Aside from such problems of valuing certain effects, there is also a problem of identifying which effects should be attributed to psychotherapy. This is accomplished by comparing treatment and control group data. To the extent valid control group data are not available, resulting benefit estimates may be in error. While the availability of appropriate effectiveness data is a problem for the assessment of any type of benefit, it is a particular problem for assessing the effects on a patient. For most effects, there will be a variety of other possible causes which will be difficult to separate without control group data.

Benefits to Those Associated With Patients.—The effects of psychotherapy may extend beyond the patient. Thus, the family and friends of a patient may have their own quality of life improved if therapy is successful. In a more tangible way, they may also achieve more productivity in their own work and have more time available for their own needs. The opportunity value of their improved productivity and time can be calculated and, where appropriate, considered as a benefit of psychotherapy.

As a result of therapy, patients may also be more productive workers, and the benefits of this productivity may accrue to their employer (over and above the wages paid to the employee). Absenteeism may be reduced, accidents be fewer, and a host of other benefits are potentially the result of psychotherapy (e.g., 138). These benefits, of course, must be reduced by costs for an employer to provide psychotherapy or to allow employees release time to undergo psychotherapy. As noted earlier, however, these costs can either be considered a direct cost or subtracted from the benefits. It is important to ensure that an analysis uses consistent procedures. It is also important that the same benefits are not counted twice; thus, for example, the analyst must be careful not to count the same wages as a benefit to the patient and to the employer.

Benefits to Society.—Some of the most tangible benefits of psychotherapy may accrue to so-

ciety. Thus, the maintenance of employment or a reduction in criminal activities may yield a savings directly to society. These effects, reflected in such savings as reduced unemployment payments, may be over and above the benefits to patients and employers. Although such outcomes may be relatively easy to value, a problem is that the benefits, if they exist, probably accumulate over a long period of time. In most cases, these benefits would have to be very large to offset the impact of discounting their value over the time they are received.

It should be noted that most often the benefits described above will be in the form of expected cost savings. Therapy-related benefits, such as reductions in work absenteeism, physician visits, drug abuse, and arrests, have each been considered in CEA/CBA studies (e.g., 31,228, 244,245). In these studies, the cost of each unit of service is estimated from average rates or from accounting records, and the reduction in use of units of social services is multiplied by the unit cost to estimate monetary cost-savings benefits. Usually, the validity of control group data to estimate these savings is critical in order to separate the effects of psychotherapy on these variables from other causes.

Discussion.—In several ways, developing benefit measures is more difficult than the comparable procedures for cost assessment. Because of the problems associated with using willingness to pay as the basis for valuing benefits, methods have to be developed to transform effects into benefits. If errors are made, they will probably result in some analyses' not taking benefits (especially the psychological ones) into account and, thus, understating the benefits of therapy. In addition, it is probably easy to err by not including some benefits. Because benefits potentially accrue to a large number of people and societal agencies, often more so than the number of people or groups who incur costs, problems in analyses may result.

METHODS FOR CEA/CBA

The purpose of carefully measuring the costs, as well as the benefits, of psychotherapy is to be able to conduct CEAs and CBAs. CEA differs from CBA and it is essential to recognize the difference (see 203). Cost-effectiveness studies require only that the costs of psychotherapy be valued in dollars. In CEA, the effects are not valued in monetary terms and can be expressed in any units. In contrast, CBA requires that both the costs and outcomes be valued in monetary terms. (Theoretically, costs and benefits need only be expessed in the same unit for CBA, but this unit is nearly always monetary.) It should also be noted that informal cost analyses can be conducted where a researcher selectively pays attention to some aspects of resource use or benefits.

Although CEA usually requires a simpler set of procedures and yields less comparative information than CBA, CEA is often considered a more appropriate tool; in other cases, when certain comparative information is necessary and when valuation problems can be overcome, CBA is better suited to the problem (see, e.g., 98,157,206,305,307). In still other cases, when comprehensive data are not available, actual CEA/CBA is not done, but the costs and benefits are compared informally. Most commonly, CEA and CBA have been used to compare the "worth" of different psychotherapies as provided in different settings. Also frequently employed are formal and informal CEA/CBA studies designed to yield information to those directly responsible for the therapy. Such analyses often try to assign costs and outcomes to specific treatment processes, so that the optimal mixture of processes can be obtained (see 305). Below, some procedures associated with the conduct of CEA and CBA studies are described.

Cost-Effectiveness Analysis

When benefits and costs cannot be valued in the same units, or when the outcomes of a treatment seem more valid when expressed in their natural units (e.g., reduction of a anxiety), then CEA is probably more appropriate than CBA

(e.g., 157,237). In addition, when treatments are compared that have similar goals, CEA may provide an adequate and appropriate methodology. In conducting CEA, outcome data are divided by costs to form cost-effectiveness ratios. The procedure allows, for example, the comparison of several therapies to determine which therapy produces the greatest amount of change for the least cost. A variety of examples of this procedure are given in chapter 6.

Tabulation and Matrix Methods.—One of the simplest ways to analyze effectiveness and cost relationships is to display the data in an array. A simple tabulation model described by Krumboltz (150) provides a rudimentary example of how the basic direct cost, processes, and effectiveness can be arrayed in a useful way. A table is developed with the sideheadings "Problem Identification," "Method," and "Outcome." Under a supraheading, "Cost," are the headings "Activity," "Hours," and "Dollars." Cost breakdowns, problems to be worked on further, and the other essential information for simple analysis are contained here.

Newman (30,198) has developed a CEA procedure that has been adopted in a number of psychotherapy settings. An instrument is used to measure level of functioning along a range of dimensions. Newman arrays his outcome data in a matrix, using dimensions such as level of functioning before treatment and level of function after therapy. The cells of the matrix are completed with the number of patients who functioned at that level before treatment and who moved to another level of functioning by the end of therapy (or who stayed in the same level). Next, the cost of treating each patient in that cell of the matrix is summed, and divided by the number of patients whose functioning change is described by the cell. The resulting cost-per-patient ratio reflects cost effectiveness in terms of its position in the matrix (see also 270).

Linear Functions.—To describe and predict relationships between effectiveness and cost, it is possible to develop equations that describe cost-effectiveness relationships (see 305). The techniques that would achieve a given level of effectiveness also can be chosen from this graphic model of the cost-effectiveness relationship. Not only can effectiveness be predicted, but the effectiveness of particular techniques for different costs can be determined. In an actual situation, a number of possibilities exist for a function to describe this relationship (e.g., linear or exponential). Ideally, if this method were chosen before therapy, several plausible models would be chosen, such as the linear and exponential, and the average of predictions generated from them would be used in decisions until further information supported one model over the other.

Linear Programing.—Finally, some applications of CEA techniques attempt to incorporate information on cost limits, as well as on the factors that determine the effectiveness of psychotherapy. The basic concept underlying linear programing is to consider not only the factors that contribute most to therapy outcomes, but also the cost of less effective factors and budget restrictions. Linear programing is a statistical procedure used to find the exact mixture of the most contributory factors that are possible within budget constraints.

The equations for linear programing bring together information on which therapy techniques, delivery systems, or therapists work best and on the amounts of each resource needed to implement each technique or delivery system, or to hire each therapist. Equations can be used to minimize the total costs of achieving a prescribed degree of effectiveness or benefit. The equations can also be manipulated further to discover which cost constraint could be fitted to yield the maximum improvement of effectiveness or benefit. A number of psychotherapy researchers have advocated use of these and related techniques to conduct cost analyses in the human services delivery such as psychotherapy (e.g., 1,14,72,115,193,310).

Cost-Benefit Analysis

In CBA, benefits are summed using the same units (e.g., dollars, person-hours) and costs are summed using the same units as benefits. A ratio is then derived by dividing total benefits by total costs. If benefits exceed costs, the ratio is larger than 1, and if benefits are less than

costs, the ratio is less than 1. Such benefit/cost ratios provide a convenient economic index of the net benefit of an activity.

One reason that CBA may be more useful than CEA is that decisions which compare benefits to costs of a treatment program are seldom made in isolation. Often, benefits and costs of a given treatment are most useful when compared with benefit/cost ratios of other treatments competing for the same funds. Thus, an alternative treatment program may be available which could generate superior benefit-to-cost ratios. The important factors are the difference in the costs of alternative treatments, the difference in benefits of alternative treatments, and the ratio of benefit to cost. An argument can be made that effectiveness measures should be used, in some cases, instead of benefit measures, because effectiveness data probably retain more accurate and valid information on treatment outcomes. That very much depends on the situation, however, and it may be necessary to present both types of data.

To illustrate the problem, consider the applications of CEA methods to psychotherapy by Halpern and his colleagues (22,113,114). Their approach views improvement in therapist ratings of patient functioning as a monetizable increment in the economic value of the patient. This increment is contrasted, in simple benefit/cost ratios, to the monetary cost of treating the patient. Potter, Binner, and Halpern (216) have made their models somewhat more sophisticated by considering benefits according to the amount of time the patient stays in the community as well as the improvement noted by the end of therapy. Although perhaps useful, this method suffers from potential bias in therapist ratings of improvement in patient functioning and in assignment of a somewhat arbitrary value (e.g., $10,000) to each functioning unit improvement. It may be more accurate to use the actual functioning unit scores in a CEA.

Depite such problems, there are still reasons to prefer benefit measures, especially when the units in which benefits have been measured are more directly meaningful than those used by Halpern, et al. (22). Ratios of effectiveness divided by cost may not provide as much information as benefit divided by marginal cost, because if the latter is greater than 1, the additional benefits of one of the alternative treatments can be said to be "worth" the additional costs it requires. It is difficult to make a similar statement about effectiveness/cost ratios.

Fishman's research (77,78), developed to assess the effects of a community mental health center, illustrates the use of similar CBA procedures. Fishman views CBA as an experiment in which outcome and cost data are gathered using the research designs for assessing efficiency described earlier. If the effectiveness of one program or program component is shown by statistical analysis to be significantly superior to the effectiveness or benefit of another program, and the costs of the two do not differ significantly, then the program with superior effectiveness is more cost effective. If the costs of alternative programs differ significantly, but their effectiveness or benefit does not, then the least costly program is adopted. Fishman acknowledges that his model breaks down in situations where the significantly more effective or beneficial program is also significantly more costly. The question as to whether the increment in effectiveness or benefit is "worth" the increment in cost is, as noted earlier, a question for marginal benefit-cost analysis.

Net Benefit Analysis.—It should be recognized that ratios of benefit to cost or effectiveness to cost do not really yield information about the absolute amount of benefits and total costs involved. This information may be important in decisions that must deal with limits on the maximum cost allowable and on the minimum benefit that should be produced. The amount that benefits exceed costs also may be of concern. A benefit/cost ratio of 2 can be produced by a benefit of $200 and a cost of $100 for one program, or by a benefit of $200,000 and a cost of $100,000 for another program, but these two programs are not the same. If no more than $2,000 can be spent, the former treatment program is the only feasible one; if benefits must exceed $2,000, then the second treatment program is the only one possible. To aid in maximizing benefits, analysts often calculate net benefits, which are present-valued benefits minus pres-

ent-valued costs. This is one of the advantages in expressing outcomes and costs in the same units. If the net benefit is negative, then the program is not worthwhile; if net benefits exceed zero, the program is worthwhile. This information may be more useful than ratios in many instances, although it might also be desirable to consider calculations of net benefit per patient.

Sensitivity Analyses.—In any CBA, it is important to consider the impact of alternatively valuing benefits and the impact of measurement error. For example, if a benefit of $100,000 is in error by ± 10 percent and the cost of $90,000 in error by ± 10 percent, the benefit/cost ratio might vary from 0.91 ($90,000)/($99,000), to 1.36 ($110,000)/($81,000), instead of the 1.11 ($100,000)/($90,000) calculated originally. Providing these alternative calculations would give the interpreter of the CBA an idea of the possible error.

Statistical analyses can also be applied to such problems. Thus, for example, one can calculate standard error scores which provide a precise statistical measure of error (see, e.g., 201). Statistical procedures can also be used to test the significance of different cost/benefit ratios (30). These ratios are typically calculated for the treatment as a whole, in which case possible error in measurements of costs, effectiveness, and benefits cannot be treated as variance about a mean, but instead as an absolute error. In such analyses, the degree to which measurement error may influence the benefit/cost ratio can be investigated only by first establishing a reasonable range of possible error and next calculating (benefit given error)/(highest cost given error), and (highest benefit given error)/(lowest cost given error). Some of these procedures are also applicable to CEA.

SUMMARY

There exist a variety of methods to assess the costs and benefits of psychotherapy and to compare the data generated by various studies. Although in the case of psychotherapy, unique difficulties arise (in particular, having to do with the valuation of benefits), the problems of conducting CEA/CBAs are not necessarily unique to assessments of psychotherapy. In every instance, the usefulness of such analyses is very much dependent on the quality and availability of outcome data. It would seem, however, that much more methodological development needs to take place with respect to CEA/CBA before these techniques can be used with known reliability and validity in psychotherapy assessments. The substantive literature describing the application of these methods to psychotherapy is examined in the next chapter of this report.

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6.
Illustrative Cost-Effectiveness and Cost-Benefit Analyses

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6.
Illustrative Cost-Effectiveness and Cost-Benefit Analyses

As noted in the previous chapter, the application of cost-effectiveness and cost-benefit analysis (CEA/CBA) to psychotherapy is fairly recent and probably far less developed than other areas of psychotherapy research. Not surprisingly, therefore, there are a number of problems with the available CEA/CBA research. Some of these problems have to do with the methodological limitations of the ways in which psychotherapy's outcomes have been assessed (see chs. 2 and 3); additional problems relate to the way CEA/CBA methods have been employed. CEA/CBAs of psychotherapy, for example, focus solely on the costs of treatment and pay minimal attention to outcomes. Others use single or insensitive measures of outcome. Still others fail to measure costs or outcomes comprehensively, and many CEA/CBA studies use accounting costs, rather than opportunity costs. CEA/CBA studies that use only accounting costs potentially underestimate the actual amount of resources required to provide psychotherapy treatments and the benefits that may accrue from their application. At present, CEA/CBA analyses of psychotherapy seem to have neither the methodological rigor, nor the breadth of application, to be centrally useful in assessing psychotherapy's value (see 2).

Despite the problems with CEA/CBA research, however, it does not follow that CEA/CBA studies of psychotherapy cannot or should not be conducted. As described in chapter 5, there are methods for valuing the resources used by psychotherapy; in addition, methods for valuing the outcomes of psychotherapy, though less well developed, can be applied. To the extent that CEA/CBA is a useful adjunct to the health policy decisionmaking process (see 203), its application to psychotherapy seems as reasonable (see, e.g., 179) as its application to other health problems. The use of CEA/CBA studies may provide information about the use and impact of psychotherapy that is otherwise unavailable. At the very least, such studies may help structure the questions and data about psychotherapy in a way that should aid policymakers in choosing among alternative programs. CEA/CBA may also be useful in stimulating better research about the effects of psychotherapy. When resource-effect relationships are considered as in CEA/CBA, aspects of psychotherapy are highlighted which otherwise might be ignored; thus, for example, cost analyses may suggest assessing a wider range of variables than would usually be considered theoretically relevant.

Although CEA/CBA studies of psychotherapy currently appear to have limited policy usefulness, it should be recognized that data from such studies sometimes provide helpful policy information. There are reliable and valid data which indicate that some conditions of offering psychotherapy are more cost effective or cost beneficial than others. Although these data may have limited generalizability, they may be helpful in making specific resource allocation decisions (e.g., reimbursement policy for mental health treatments). The data also suggest promising areas for future research.

The review below describes selected aspects of a number of recent cost-effectiveness and cost-benefit studies of psychotherapy. The focus is on individual studies, because syntheses of the CEA/CBA literature in psychotherapy are not yet available. In general, the available CEA/CBA studies do not compare different psychotherapy treatments—instead, they deal with the factors that affect the provision of psychotherapy treatments. Thus, a major emphasis of CEA/CBA studies conducted to date has been differences among treatment settings. Another emphasis has been the analysis of conditions under which either low-cost therapies or potentially high-benefit treatments have been used.

Because of the difficulties associated with measuring psychotherapy's benefits (see ch. 5), the literature is probably biased toward assessing low-cost treatments. This characteristic of the available studies should be kept in mind.

The attempt in the present review is not to provide a comprehensive analysis of the CEA/CBA literature, but to illustrate the types of studies available and their findings. A number of the studies reported here were included, in some form (e.g., were considered within a review that was analyzed), in the discussion of effectiveness in chapter 4. They are described in more detail in the present chapter because of their explicit consideration of resource issues (i.e., assessment of cost and/or benefits). Included in the present chapter are a number of studies that assess effectiveness poorly and contain other methodological flaws. These studies are included to suggest the potential contribution of CEA/CBA research on psychotherapy and to identify some of the problems of conducting CEA/CBA.

The discussion below is organized according to the treatment factors and patient conditions to which CEA/CBA has been applied. First, the review considers a number of treatment-related characteristics that have been subjected to CEA/CBA. Next, it considers therapist factors as they relate to costs of treatment and outcomes. Finally, several specific patient conditions and CEA/CBA studies of psychotherapy treatments applied to these conditions are reviewed.

TREATMENT-RELATED CHARACTERISTICS

As noted above, a focus of psychotherapy CEA/CBAs conducted to date has been characteristics of the treatment system in which psychotherapy is provided. Some studies have focused on the provision of psychotherapy under various forms of institutional care, and some have compared, for example, institutional and outpatient/community-based treatments. The results of these comparisons are not easy to summarize, although it does seem clear that the conditions of treatment can vary widely in terms of the resources they use and their impact.

Inpatient Therapy

One area in which CEA/CBAs of psychotherapy have frequently been done concerns institutionalization of mental patients and the provision of inpatient psychotherapy. The costs of institutionalizing a patient are high, and the costs of providing therapy (in addition to caring for the patient) are potentially even higher. A number of studies have examined the costs and benefits of various treatments offered patients, in particular, the provision of therapy along with custodial or milieu care. The conclusion of a number of these studies is that the provision of psychotherapy can provide more cost-effective or cost-beneficial treatment (e.g., 24,130, 175,273,289). These findings were obtained because therapy may reduce the amount of hospitalization or achieve larger benefits in some other area.

McCaffree (175), in one study of the benefits of "intensive" inpatient treament, reviewed the costs and results of treatment in the Washington State hospital system during two periods. During the two periods, there was a shift in the treatment of institutionalized patients. In the first period, only custodial care was provided; in the second period, various forms of psychotherapy (which was called "intensive therapy") were provided as well. McCaffree assessed the costs for both types of treatment. He included both public costs (e.g., subsistence and treatment) and private costs (e.g., loss of patient income). McCaffree found that the costs per patient in intensive therapy were about 50 percent less than the costs of custodial care. Moneys were saved in intensive therapy primarily because patient stays were much shorter (22 v. 42 days). Unfortunately, McCaffree's data are nonexperimental, and some of his data indicate that the intensive therapy patients may have been less disabled than the custodial care group.

In addition, McCaffree ignores psychological measures of effectiveness. It is possible that the intensive therapy group was no better after receiving treatment, but that criteria for patient discharge had been altered between the two data gathering periods. Also important is the fact that not only was more psychotherapy offered in intensive treatment, but (see 173) drug treatment was introduced at the same time.

A later study by May (173) assessed the cost effectiveness of milieu care (see also 24) and four other treatment methods. A patient in milieu care is provided a therapeutic environment (nurses and others who deal with the patient are specially trained). May used experimental procedures to assign schizophrenic patients to treatment conditions and assessed both costs and effectiveness. He found that milieu therapy was almost as costly as psychotherapy, but was the least effective of the five treatments. Drugs without psychotherapy were the least costly treatment, and drugs with psychotherapy were the most effective. It is difficult to determine whether May's results are generalizable to other patient conditions and psychotherapy/chemotherapy as they are currently provided.

Community-Based Versus Institutional Therapy

Although it appears to be more cost beneficial and cost effective to provide inpatients with intensive treatment, other alternatives have been studied. Thus, a major focus of CEA/CBA studies has been community-based approaches for providing psychotherapy. Community care has the potential to provide major cost savings, because such care reduces the costs not directly associated with treatment (i.e., the costs of housing, feeding, and supervising an institutionalized patient are higher than the costs of the same services provided in the community).

Thus, for example, Binner, Halpern, and Potter (22) used data from almost 600 patients who had received either inpatient or outpatient treatment. Binner, et al. quantified intensity according to a factor-analyzed combination of resource utilization, therapeutic involvement, support from the therapeutic environment, and length of stay (see 247). Binner, et al. found that less intensive treatment resulted in higher benefit/cost ratios. Categorizing patients by severity of dysfunction at admission, and stratifying therapy intensity at four levels, Binner, et al. showed that benefit/cost ratios were greater than 1 (benefits exceeded costs) for all combinations of impairment and intensity, but were significantly larger for low-intensity therapy provided to less impaired patients. Average benefit/cost ratios ranged from 2.28 for patients treated more intensively to 5.23 for patients given the least intensive therapy. These results suggest that therapy may not be effective for severely impaired populations and that resources should be directed to outpatient treatment.

Although Binner, et al.'s (22) study collected data on outcomes as well as cost, it is nevertheless difficult to generalize from it. One problem is that patients were not randomly assigned to different levels of therapy intensity. The classification scheme for intensity, though mathematically sophisticated, cannot control for possible differences in the type of patient who was assigned to more versus less intensive therapy. It is also not clear whether the patients who participated in community-based treatment had dysfunctions as severe as those of the inpatients. Furthermore, the outcome measure used by Binner, et al. was a gross measure based on a therapist rating. The valuing of this benefit was done by assigning an arbitrary dollar amount to changes in therapists' ratings. Finally, Binner, et al. used operations costs, rather than opportunity values, and this may have led to either an underestimate or overestimate. It is difficult to determine what bias was incorporated and how this relates to the procedure they used to value therapist-rated changes.

In another study of an outpatient treatment program, Washburn, Vanicelli, Longabaugh, and Sheff (292) studied a "daycare" treatment. Daycare is actually a modified form of inpatient treatment where patients return to their own homes (or families) each evening. The researchers collected a variety of effectiveness data, including checklists completed by patients, those

who knew them well, and their therapists. Patients were assigned randomly to daycare or standard inpatient care. Analyses of effectiveness data collected at 6-month intervals during therapy and at a 2-year followup found only a few significant differences. Daycare patients evidenced somewhat less subjective distress, functioned better in the community, and were less of a burden to their families than patients who received standard inpatient therapy. Cost data also collected at 6-month intervals, however, showed significantly lower costs for daycare. The lower cost of daycare treatment seems to be the primary determinant of cost effectiveness, although daycare also seems to have improved effectiveness to some degree. What is missing from Washburn, et al.'s study, unfortunately, is a no-treatment or a placebo treatment condition, which would allow inferences about how much of the outcome is caused by factors not related to treatment procedures (i.e., spontaneous remission), or by the patient's expectations.

In another comparative study of community versus institutional treatment, Murphy and Datel (192; see also 57) projected the costs and benefits for 52 mentally ill and mentally retarded patients who were placed in the community from State institutions. The costs of community care included housing and subsistence, as well as the costs of community treatment. Benefits included the cost savings of not having to provide institutional care and the wages/fringe benefits received from jobs. Costs and benefits were adjusted for present value (a 0.08 discount rate was used) and inflation. Murphy and Datel's results were organized in terms of 12 patient categories. Their findings indicated that 10-year projected benefits exceeded 10-year projected costs of community care, yielding benefit/cost ratios of between 0.99 to 11.86. The average ratio was substantially greater than 1, indicating that community care was superior.

Murphy and Datel's (192) study, although it considered a broader array of benefits and costs than most CBA studies and used present value and inflation adjustment procedures, does have some methodological problems. Although it was recognized that there are psychological benefits to patients and their families and data on such things as marriage, normality of appearance, mobility in the community, and employment were presented, these data were not used in the benefit/cost ratios. Valuing such benefits is admittedly difficult, but Murphy and Datel's analysis, as presented, may underestimate therapy's benefits. Another problem with this study that limits its validity is that patients who refused community placement were not included in the analysis. These individuals were considered treatment failures and excluded from the analysis. If a significant number of these patients returned to the institution, costs of establishing them in the community ("set-up" costs) and of readmitting them to institutions should have been incorporated in the CBA. The study also didn't consider cost ratios for an alternative program. As discussed in the preceding chapter, there always is an implicit alternative to which a cost-benefit calculation is compared and not all programs with benefit/cost ratios exceeding 1 should be continued. An obvious comparison group for the Murphy and Datel study would have been a randomly selected group from the potentially deinstitutionalizable population that was retained in the institution or was released to another program.

Cassell, Smith, Grunberg, Boan, and Thomas (32) obtained cost and effectiveness data for almost 500 deinstitutionalized patients, most of whom had been diagnosed as chronic schizophrenics. These patients had resided in mental hospitals for an average of 18.2 years prior to deinstitutionalization, and the costs of hospitalization had totaled $70,000 per patient before release. After deinstitutionalization, the costs of welfare, followup, drugs, and rehospitalization for those who could not adapt to community living was only $1,575 annually, or 2.44 times less than the cost of institutionalization. Although very few of the patients would have been discharged had their deinstitutionalization program not begun, 49 percent of the men and 38 percent of the women under age 65 were employed at least 3 months during the 2-year postrelease period. More than 20 percent of the men and 10 percent of the women were employed for at least 13 months following their

release. Utilization of medical care by the deinstitutionalized patients was also significantly less than for normally adjusted persons in similar groups. In sum, the cost was less and effectiveness greater for noninstitutional compared to institutional care provided to severely disturbed patients. Other studies of deinstitutionalization, which similarly have tracked patients after release, have yielded similar findings (see, e.g., 79,156,191).

An important methodological limitation of these deinstitutionalization studies is their use of nonexperimental designs. Typically, these CEA/CBA studies follow deinstitutionalized patients, accounting for the resources they require. This is potentially problematic given the fact that new treatments were simultaneously being introduced within mental hospitals (see 173,175) and the fact that patients who were deinstitutionalized are likely to be less disabled than those who remain in the hospital. There is also a problem of adequately assessing the costs of community care. Although most studies include major housing and support costs for maintenance of patients in the community, a comprehensive accounting of community costs may be difficult (especially in comparison to the obviousness of many costs borne in a hospital). As a result of these factors, the high benefit/cost ratios for community treatment may be overly optimistic.

The study reported by Weisbrod (296; see also 297) illustrates the implications of considering these factors comprehensively in a CBA. Weisbrod compared traditional therapy in a mental institution against a community care program using random assignment of patients. Therapy in the mental institution was brief (usually less than 1 month) and was followed by community care delivered by local mental health agencies. The usual stay in the hospital was 17 days, but many patients returned to the institution. Therapy in the alternative community-based program involved relatively little time in institutions (i.e., every effort was made not to hospitalize patients). During this 14-month "community living" trial, patients had to cope with normal living conditions and were required to take responsibility for the problems that might, in other circumstances, result in their return to an institution.

Sixty-five patients were included in each therapy condition and data were collected for the first 12 months of treatment. Weisbrod's (296) cost assessment procedures were comprehensive and included a variety of direct and indirect costs of treatment. Included also were law enforcement costs and family burden costs (e.g., lost wages caused by the patient). Weisbrod's results indicated that community care was slightly more costly, but yielded higher benefit than the institutional treatment program. The costs were higher in the community program because patients were closely supervised and received intensive therapy. The benefits of community treatment were higher primarily because the outpatients earned more from employment.

Despite the use of random assignment and comprehensive assessment of cost and benefits, there are important limitations to the generalizability of Weisbrod's (296) findings. Although data were collected over a relatively long period of time (4 years, from 1972 to 1976), each patient participated for only 14 months. That may be too short a time to assess the effects of treatment. In addition, only a rather small number of patients were included (less than 150), all from the same geographic area. It is not clear whether the program actually studied a representative sample of those eligible for deinstitutionalization. There is also no evidence that either community or institutional treatment is superior to no treatment, since a no-treatment control condition was not included. Of course, the patients in Weisbrod's study were severely dysfunctional, and withholding treatment would have been difficult.

Residential Versus Institutional Therapy for Problem Children

Most of the aforementioned studies involved schizophrenics and other severely disturbed adults. Another typical application of CEA/CBA in assessing mental health treatments are studies which have examined the use of psychotherapy for "problem populations" (see 63). For example, there has been great interest in study-

ing the use of psychotherapy with juvenile delinquents. There is evidence that a substantial number of serious crimes are committed by juveniles under 14 years of age (see 286), and there is considerable correlational evidence that criminal behavior in youths is related to adult crime and mental dysfunction (see, e.g., 233). The magnitude of the costs associated with these problems is very great.

A number of studies have investigated the use of behavior modification procedures with troubled youths. Phillips (213), for example, presented data on the cost and effectiveness of a residential token economy therapy for juvenile delinquents called Achievement Place (see also 243). Token economy therapy is an application of learning theory to establish a therapeutic milieu. Along with the direct costs of treatment, Phillips assessed effectiveness data on several variables, including police and court contacts, school attendance, and grades before, during, and after therapy. Before therapy, Achievement Place youths averaged about 3.8 contacts per year with the police or courts. After 1 year of therapy, Achievement Place delinquents averaged only 0.75 police and court contacts and no contacts 2 years after therapy. In comparison to a traditional program for juvenile delinquents (a special school), Achievement Place was much more effective and one-third as costly ($6,000 v. $20,000 to $30,000 per delinquent).

Although Phillips, et al. (213) provide very positive cost-effectiveness data, it should be noted that their findings are in contrast to those of Powers and Witmer (217). In what has become a classic study (known as the Cambridge-Somerville youth study), 650 youths were matched and randomly assigned to either long-term counseling and supervision or no mental health treatment. The participants in this study were tracked from 1939 to 1976, and data on a variety of psychological and social dimensions were collected (see also 178). Unfortunately, no long-term benefits can be demonstrated, and there is some disturbing evidence that the therapy-treated youths have faired worse than those who received no treatment (on such criteria as alcoholism and later mental health). It is important to recognize, however, that the treatment received by these youths may be far different from that provided by current standards (see 269). In some respects, the Cambridge-Somerville approach is not comparable in rigor to treatments such as Achievement Place (which was based on a clear-cut theoretical rationale).

THERAPIST VARIABLES

Because the major proportion of resources used in psychotherapy relates to the cost of personnel time, a number of cost comparisons of different therapists have been conducted. Included in these studies is an analysis of the differences in fees charged by various professionals and paraprofessionals and the impact of therapist variables on outcome.

Professional Therapists

Karon and VandenBos (132) report one of the few available studies on the cost effectiveness of different professional therapists. A small number of patients diagnosed as schizophrenics were treated by psychologists, by psychiatrists, or by drugs without therapy. Karon and VandenBos found that the cost of therapy provided by psychologists was substantially less than the cost of therapy provided by psychiatrists, primarily owing to lower hospitalization and drug use in therapy provided by psychologists. The average cost per patient treated by psychologists was $7,813, but the average cost per patient was $12,221 when psychiatrists provided treatment and $17,234 when drugs alone were used in therapy. Long-term costs due to recidivism also favored psychologists over psychiatrists. Patients treated by psychologists were hospitalized an average 7.2 days in a 2-year followup, compared to 93.5 days for patients treated by psychiatrists and 99.8 days for patients treated by drugs alone.

Although these findings suggest that psychologists may be more cost-effective therapists for schizophrenics than psychiatrists, the generalizability of these data is hard to determine. Fee schedules for psychologists vary widely, and the specific conditions of Karon and VandenBos' research setting may have affected the results in unknown ways. One important outcome was that therapy given by either type of professional was less costly than drugs alone: 17 percent less when provided by psychiatrists, and 33 percent less when provided by psychologists. While, again, it is difficult to know the generalizability of these findings, these data suggest an area for further CBAs.

In a related study, Karon and VandenBos (133) report that therapy provided by better trained therapists is more effective, though more costly, than therapy provided by less trained therapists. The reduction in costs results from generally shorter lengths of stay and other savings in types of services required. This finding was obtained despite a gross underestimate of the actual cost of hospitalization (132). The generalizability of such studies, however, may be limited to the type of patient they used.

There is evidence, for example, that hospitalized neurotics can be treated by nurse therapists with better cost/benefit ratios than with therapists who have more training (i.e., a doctorate). Ginsberg and Marks (95) assessed the effectiveness of treatment by nurse therapists for brief behavioral psychotherapy (patients used an average of 9 sessions) for neurotic and phobic patients. Ginsberg and Marks used data from 1 year prior to therapy and 1 year post-therapy to estimate the impact of therapy. The data indicated that therapy significantly reduced symptomology and resulted in a number of tangible (i.e., valued) benefits. The benefits included reduced use of medical services and improved work productivity. Since the study did not employ comparison groups, it is impossible to estimate the comparative effects of nurse-therapists; however, the study does suggest a potentially useful direction for future analyses.

Gabby and Leavitt (89) report similar findings for therapy on a population of neurotics. A self-supporting nonprofit clinic provided long-term therapy and was able to charge an average of 50 percent of the fees charged by private practitioners in the area ($13.50 to $15/hour v. $19.95/hour at that time). A key factor in the clinic's being able to offer lower fees was its extensive use of nonpsychiatric staff. Psychiatrists were called in only when necessary for consultation. Although Gabby and Leavitt provide an example of how costs can be reduced, they do not report outcome data in any detail, it is unclear whether the effects of treatment in the clinic setting were as good as those in traditional settings. In addition, it is unclear whether patients at the clinic were more or less disturbed than other patients in the community. There is also some reason to suspect that they attracted a select population of patients.

Nonprofessionals

One focus of CEA/CBA studies has been the training of parents to provide therapy to disturbed children (see, e.g., 111,211,290). In one study, Rubenstein, Armentrout, Levin, and Herald (243) placed 36 emotionally disturbed children in normal homes. Parents residing in these homes had received training in child management skills and received salaries and expense reimbursement for caring for the disturbed children. Lengths of stay ranged from 9 to 26 months, and the patients were supervised by other "parent therapists." Professional mental health specialists also met weekly with parents. Psychometric tests, grades, and a behavior checklist showed that children treated by parent therapists were as improved as comparable children treated in two residential programs. Costs of parent-therapist treatment were only half of residential treatment costs ($30.60 v. $63.77 per child per day).

What seems to have reduced costs was the distribution of professional expertise over a number of "helpers." This simple modification of the traditional way of providing psychotherapy (direct contact between professional therapists and patient) would be expected to reduce costs. However, the cost reductions suggested by the Rubenstein, et al. (243) study probably are overestimated because they do not include many of the costs of training parents. The cost

findings also are limited by Rubenstein, et al.'s use of "comparable" rather than randomly selected comparison groups. Perhaps the children assigned to the parent-therapist program were less severely disturbed or had characteristics that predisposed them to benefit more from parent therapy than other children. As is typical of many CEA and CBA studies, costs used in Rubenstein, et al.'s study were accounting costs, rather than opportunity costs. These costs may well underestimate the use of resources.

Other CBA and CEA studies have explicitly compared the use of professional versus paraprofessionals. Yates (306), for example, reports a study of paraprofessionals who conducted therapy for obese patients. The therapy was less than one-tenth as costly as therapy provided by psychologists and psychiatrists, but appeared to be equally effective. Effectiveness was measured directly in terms of the number of pounds lost. Yates' study, however, used a quasi-experimental design in which patients selected their own therapy, and it may be that those who selected the paraprofessional treatment condition believed they needed less help to lose weight (i.e., were most motivated). Also, while it can be assumed that nonprofessionals are less costly than professionals, costs were not directly reported (see also 282).

Self-directed therapy, with or without consultation with a professional, has also begun to receive some attention (see 96). Many of these studies have focused on dysfunctions typically not treated by professional psychotherapy, but there are some examples with depression, anxiety, phobias, and sexual dysfunctions. Such therapies involve the use of a book or manual to direct the individual and have been mainly based on learning and phenomenological theories. Case studies of therapies directed by manuals have yielded results indicating that positive effects can be obtained with such low-cost therapies (e.g., 294,299), but a thorough evaluation of the effectiveness and cost effectiveness of these procedures has not been done. The lack of comprehensive cost data in such studies further limits any conclusions about cost effectiveness or cost benefit.

One formal cost-effectiveness study of self-directed therapy was conducted by Marston, Marston, and Ross (170). Marston, et al. mailed obese patients weekly weight-reduction readings ("bibliotherapy") and had them respond to written questions about the readings and weight-loss problems. They found their form of therapy to be as effective as weekly visits with a professional therapist and much less costly. Unfortunately, the range of cost and effectiveness data collected was limited; in addition, these programs have not been compared with traditional psychotherapy treatments. Further studies have shown that some contact with a professional or paraprofessional therapist is necessary for these bibliotherapies to be effective compared to no-treatment groups, even if this contact is made by phone or mail (305,307).

DRUG ADDICTION AND MEDICAL UTILIZATION

The studies cited above principally focus on CEA and CBA of different ways of offering psychotherapeutic treatments. CEA and CBA reports have also been developed to study treatments for problems such as alcohol and heroin addiction. These are high-cost problems to society and are also problems that have highly visible costs and benefits/effects. Overutilization of medical services, also a costly problem, has also received considerable attention (e.g., 60, 129), and it has a number of implications for how and under what conditions psychotherapy should be evaluated in a national health insurance program. Below several CEA/CBA studies of treatment for these high-cost problems are described.

Psychotherapy for Drug Addictions

The obvious relationship between alcohol and opiate addictions and subsequent psychological dysfunction, coupled with the high societal costs of such addictions, has stimulated a number of CEA and CBA studies of therapies

for drug addictions. Involvement of multidisciplinary teams in therapy for drug addictions seem to have generated more comprehensive CEA and CBA in this area than in any other and, in general, the findings of these studies is that therapy is beneficial. This conclusion must be tempered, however, by recognizing that treatments for drug addiction almost always involve more than psychotherapy.

Rufener and his colleagues (244,245), for example, conducted a CBA of five different therapies for heroin addiction: 1) methadone maintenance, 2) therapeutic community, 3) outpatient drug-free treatment, 4) outpatient detoxification, and 5) inpatient detoxification. Benefits were calculated by estimating social costs incurred directly and indirectly as a result of heroin use (e.g., crime, incarceration, court costs), the reduction in costs produced by rehabilitating a heroin abuser, and adjustment of benefits for the relative effectiveness of different programs. Costs were assessed from accounting records of providing each therapy. Rufener, et al. considered benefits under three assumptions of the size of heroin abuser population and three different discount rates for present-valuing. The resulting ratios were all greater than 1 (benefits exceed costs) and showed that outpatient drug-free therapy to be the most cost beneficial. Drug-free therapy yielded a 12.82 benefit/cost ratio for the intermediate abuser population size (and included discount rate assumptions). A possible problem of this has to do with estimated adjustment cost savings for differential relapse rates which may have been overly optimistic. In addition, the study did not use random assignment of patients to different treatment techniques, and it is difficult to determine the possible effects of the research design.

In another study, Hall, Bass, Hargreaves, and Loeb (112) report a 20-percent reduction in the use of opiates and barbiturates for outpatient detoxification patients. Random assignment of subjects to behavior therapy and no treatment conditions was accomplished, and effectiveness was assessed by urine tests. The behavior therapy consisted of reinforcing patients (by paying them up to $10/day) for drug-free urines. Depending on the day urines were collected, 40 to 50 percent of the paid subjects had not used drugs. Since most estimates of the daily cost to society of heroin use are five or more times that cost, this reinforcement contingency seems promisingly cost beneficial, even when personnel, facility, and testing costs are added. Other data suggest that patients did not use their payments to purchase illegal drugs.

Sirotnik and Bailey (262), in a similar study, conducted a CBA of heroin addiction therapies. Their investigation involved 285 patients over a 1.5-year period. They found that comprehensively defined benefits exceeded costs by more than a 2.5 ratio under each of a range of cost-savings assumptions. This analysis probably is conservative, because it did not consider benefits that might accrue to patients and society after the program. Unfortunately, nonrandom assignment to therapies and the absence of a control group limit, the implications of this study.

Even larger benefit/cost ratios may be produced by long-term therapy for addicts, although there is much debate on this point. Aron and Daily (8), for example, found that long-term therapy was more effective and, in total, less costly than short-term therapy for drug addiction when costs of re-entry to therapy and long-run effectiveness were assessed. Cost-effectiveness ratios were $4,624 per successfully treated addict in long-term therapy, but $5,988 per successful patient in short-term therapy.

Maidlow and Berman (167) contrasted the cost effectiveness and cost benefit of a drug-free therapeutic community and methadone approaches to treating heroin addiction. The average stay of 4 years in drug-free communities was found to generate a 65-percent success rate, resulting in a direct cost per successful patient of $17,760. Methadone or other drug substitution had a higher, 87-percent success rate at a lifetime cost effectiveness of $45,000 per successful patient. Considering the probability that former addicts would leave therapy, and present-valuing future benefits and costs (thus reducing lifetime cost of drug substitution), it would seem drug substitution is more cost beneficial than drug-free therapeutic communities. However, Maidlow and Berman's study, although it uses

sound CBA methodology, did not use random assignment or a no-treatment control group and there may be important biases in who selects particular treatment.

Goldschmidt (101) described a comprehensive model of CEA for health care, applying it to analysis of heroin addiction therapies. Sampling 1,640 patients over a 6-month period he found 1,241 who could be interviewed and used data from them to compare the cost effectiveness of drug substitution (methadone) to the therapeutic community. Using several variables to assess effectiveness and operations cost for the two approaches, high variability was found in nonrecidivism measures of effectiveness (10.9 to 33.7 percent for methadone therapy, depending largely on length of stay, v. 12.5 to 47 percent for therapeutic communities). Goldschmidt found that the annual cost per patient of the therapeutic community was about four times the cost of drug substitution. Because therapeutic communities were found to treat more patients and have somewhat more persistent effects, the average cost/successful patient ratio was 1.7 times higher for therapeutic communities than for drug substitution, thus favoring drug substitution as more effective for its cost. This finding was maintained for both "normalcy" (i.e., some use of drugs, but normal functioning) and "heroin-free" criteria of effectiveness. This study shows the impact that treatment system costs can have on CEA findings. Consideration of lifetime costs of methadone maintenance, however, might reverse the direction or magnitude of the findings. No information was provided on opportunity value and comprehensive costs and, as well, no-treatment control groups were not evaluated.

To summarize the status of CEA and CBA for drug addictions, while this area has received much attention, there are still serious shortcomings with the available research. These shortcomings have to do primarily with the research designs used. Although some of the findings are impressive in that consistent cost/benefit ratios greater than unity are found, there may be other explanations for these results. In addition, it should be recognized that drug abuse remains a serious problem and it is not clear that the available studies are representative of the treatment programs being conducted.

Psychotherapy and Overutilization of Medical Services

Depending on the definition used, it has been estimated that medical services are overused (or in some other way abused) by between 20 and 60 percent of those who seek them (e.g., 54, 174,182). Various researchers and analysts have concluded that medical services often are used to ameliorate mental problems, rather than the treatment of physical dysfunctions. Regier, et al.'s (225) data on the role of primary care physicians in the delivery of mental health services is one indication of this problem (see ch. 1). It has been suggested that psychotherapy may be used to reduce individuals' dependence on medical services. Thus, for example, a 4-year study by Cavanaugh (cited in 119) found that hospitalization for physical ailments was reduced from an average 111 to an average 53 days by psychotherapy, resulting in a $1.1 million savings (which was greater than psychotherapy costs).

Cummings and Follette (53; see also 99) reported that a single session of psychotherapy reduced utilization of medical services for high utilizer patients by 60 percent over a 5-year period. Additional sessions further reduced medical care utilization: patients attending two to eight sessions subsequently decreased medical use by 75 percent. Continuing their study on use of medical services in the large Kaiser-Permanente health insurance plan, Cummings (51) used findings from Cummings (50) and Cummings and Follette (52,53) to contrast the benefits of medical cost savings to costs of four durations of psychotherapy.

Cummings formed benefit/cost ratios by dividing medical care utilization (number of visits) for the year preceding therapy by the sum of subsequent medical care and psychotherapy visits. Very brief psychotherapy (one to four sessions) generated "cost-therapeutic effectiveness" (actually crude benefit/cost) ratios of 2.59. Psychotherapy lasting from 1 to 15 sessions had a similarly positive benefit/cost ratio of 2.11.

Long-term therapy (more than 16 sessions) and interminable therapy were found to be less cost-beneficial (benefit/cost ratios of 1.14 and 0.91, respectively). Not receiving any psychotherapy, however, generated the worst ratio of all: 0.88.

Other investigators have found specific reductions in use of physician services, especially laboratory and X-ray services. In one report, Goldensohn and Fink (100) found that these effects followed after the administration of psychological tests. A number of other studies show similar, and often monetized, reductions in medical care utilization following a variety of forms of psychotherapy, including brief treatment (e.g., 125). In many of the studies, reductions in medical utilization have been directly related to reduced costs.

Jones and Vischi (129), at the National Institute of Mental Health, have conducted a comprehensive review of the literature on the "offset" benefits of psychotherapy treatments. They reviewed 25 studies that examined the impact of therapy for mental illness, alcohol abuse, and drug abuse on medical utilization. Their conclusion was that, under certain circumstances, medical care utilization does "appear" to be reduced as a result of therapy. In particular, for treatments of mental illness, they found 12 studies (out of 13 available studies) which demonstrated reduced medical care utilization following therapy. The median reduction was 20 percent, and the range (for the 12 studies) was 5 to 85 percent. The reduction in medical care utilization was accompanied by parallel reduction in cost (mental health treatments being typically less costly than medical treatment). The investigators report a variety of benefit/cost ratios, which range from 0.95 to 2.11.

Jones and Vischi (129) also reported a variety of studies in which psychotherapeutic treatments were applied to alcoholism and drug abuse. These studies report similar findings (of reduced medical care utilization) although they tended to have more methodological problems than the mental illness studies. A particular problem for all of the studies was the frequent lack of appropriate control group conditions. Another problem was the selection of time periods for analysis. Typically, patients entered these studies after a period of high use of services and it is difficult to attribute the reduction solely to the mental health treatment (it could reflect a natural change in medical needs). Jones and Vischi, although optimistic about the use of psychotherapy to reduce medical utilization, recommend more rigorous research that includes better cost-benefit data.

In a number of cases, psychotherapy has been employed as an adjunct to medical services (e.g., 143,204,215,238). Although there is not yet a substantial literature describing the effectiveness of psychotherapeutic treatments used in this way, such fields as "behavioral medicine" are being developed. It would seem that as the effectiveness literature on such behavioral-mental treatment matures, cost and benefit data should also be assessed.

SUMMARY

This chapter has provided a number of illustrations of the use of CEA/CBA methods for assessing a variety of psychotherapy treatment alternatives and mental health problems. The conduct of CEA/CBA studies of psychotherapy research is not widespread, and many important areas and types of psychotherapy have been ignored to date. The review in this chapter suggests that, for some treatment system characteristics and for some problems, psychotherapy appears to be cost beneficial and that it can be made more efficient (improved cost effectiveness). These findings must be considered tenuous, however, given the methodological problems inherent in many of these studies. What is needed is a more systematic application of rigorous research designs that employ no-treatment and placebo treatment conditions, as well as more comprehensive measures of outcome and cost.

It would seem that we possess the scientific tools to assess psychotherapy and to use this information in making policy decisions about societal support for these treatments. It would also appear that we have substantial knowledge which indicates that these treatments offer the potential to improve well-being and to be cost effective. Although one will probably never be totally satisfied with the answers provided by research, that seems a poor reason not to attempt more rigorous and comprehensive scientific analyses.

Appendixes

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Appendix A.—Description of Other Volumes of the Assessment

The overall OTA assessment, *The Implications of Cost-Effectiveness Analysis of Medical Technology*, consists of a main, policy-oriented report plus five background papers. The present volume, *The Efficacy and Cost Effectiveness of Psychotherapy*, is one of the background papers. The main report and the other background efforts are briefly described below.

The main report examines three major issues: 1) the general usefulness of CEA/CBA in decisionmaking regarding medical technology, 2) the methodological strengths and shortcomings of the technique, and 3) the potential for initiating or expanding the use of CEA/CBA in six health care programs (reimbursement coverage, health planning, market approval for drugs and medical devices, Professional Standards Review Organizations, R&D activities, and health maintenance organizations), and most importantly, the implications of any expanded use.

The prime focus of the report is on the application of CEA/CBA to medical technology (i.e., the drugs, devices, and medical and surgical procedures used in medical care, and the organizational and support systems within which such care is provided). With the exception of the present background paper on psychotherapy, the report does not address psychosocial medicine. Other aspects of health, such as the environment, are not directly covered either. The findings of the assessment, though, might very well apply to health care resource decisionmaking in general, and with modification, to other policy areas such as education, the environment, and occupational safety and health.

The main report contains chapters on methodology, general decisionmaking, each of the six health programs mentioned above, and the general usefulness of CEA/CBA. It contains appendixes covering a survey of current and past uses of CEA/CBA by agencies (primarily Federal), a survey of the resource costs involved in conducting CEA/CBAs, a discussion of ethical issues and CEA/CBA, and a brief discussion of legal issues.

Background Paper #1: Methodological Issues and Literature Review, includes an in-depth examination of the decisionmaking context and methodology discussions presented in this report. A critique of the literature, a bibliography of over 600 items, and abstracts of over 70 studies and other articles are also included.

In order to help examine the applicability of techniques to assess the costs and benefits of medical technology, 19 case studies were prepared. All 19 are available individually. In addition, 17 of the cases are available collectively in a volume entitled *Background Paper #2: Case Studies of Medical Technologies*. Some of the cases represent formal CEAs (e.g., the case on bone marrow transplants), and some represent net cost or "least cost" analysis (e.g., the case on certain respiratory therapies). Other cases illustrate various issues such as the difficulty of conducting CEA in the absence of adequate efficacy and safety information (e.g., the case on breast cancer surgery), or the role and impact of formal analysis on policymaking (e.g., the case on end-stage renal disease interventions). The 17 case studies in *Background Paper #2* and their authors are:

Artificial Heart
- Deborah P. Lubeck
- John P. Bunker

Automated Multichannel Chemistry Analyzers
- Milton C. Weinstein
- Laurie A. Pearlman

Bone Marrow Transplants
- Stuart O. Schweitzer
- C. C. Scalzi

Breast Cancer Surgery
- Karen Schachter
- Duncan Neuhauser

Cardiac Radionuclide Imaging
- William B. Stason
- Eric Fortess

Cervical Cancer Screening
- Bryan R. Luce

Cimetidine and Peptic Ulcer Disease
- Harvey V. Fineberg
- Laurie A. Pearlman

Colon Cancer Screening
- David M. Eddy

CT Scanning
- Judith L. Wagner

Elective Hysterectomy
- Carol Korenbrot
- Ann B. Flood
- Michael Higgins
- Noralou Roos
- John P. Bunker

End-Stage Renal Disease Interventions
- Richard A. Rettig

Gastrointestinal Endoscopy
- Jonathan A. Showstack
- Steven A. Schroeder

Neonatal Intensive Care
Peter Budetti
Peggy McManus
Nancy Barrand
Lu Ann HeinenNurse Practitioners
Lauren LeRoy
Orthopedic Joint Prosthetic Implants
Judith D. Bentkover
Philip G. Drew
Periodontal Disease Interventions
Richard M. Scheffler
Sheldon Rovin
Respiratory Therapy
Richard M. Scheffler
Morgan Delaney

The 18th case study is the present volume, *Background Paper #3: The Efficacy and Cost Effectiveness of Psychotherapy*. The 19th case study was prepared by Judith Wagner and is published separately as *Background Paper #5: Assessment of Four Common X-Ray Procedures*.

Background Paper #4: The Management of Health Care Technology in Ten Countries is an analysis of the policies, programs, and methods, including cost-effectiveness and cost-benefit techniques, that nine industrialized nations other than the United States use to manage the effects of medical technology. The experience of these nine countries in managing medical technology is compared to that of the United States. The paper on the United States and the comparative analysis were prepared by OTA staff, assisted by Louise Russell. The authors of the papers on the nine foreign countries are:

United Kingdom
Barbara Stocking
Canada
Jack Needleman
Australia
Sydney Sax
Japan
Joel Broida
France
Rebecca Fuhrer
Germany
Karin A. Dumbaugh
Netherlands
L.M.J. Groot
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A related report prepared by OTA and reviewed by the Advisory Panel to the overall assessment is *A Review of Selected Federal Vaccine and Immunization Policies*. That study, published in September of 1979, examined vaccine research, development, and production; vaccine efficacy, safety, and cost effectiveness; liability issues; and factors affecting the use of vaccines. Pneumococcal vaccine was used as a case study, and a CEA/CBA was performed.

Appendix B.—Health Program Advisory Committee, Acknowledgments

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References

1. Alberts, D. S., *A Plan for Measuring the Performance of Social Programs: The Application of Operations Research Methodology* (New York, N.Y.: Praeger Publications, 1970).
2. Alcohol, Drug Abuse, and Mental Health Administration, *National Data Book, January 1980*, DHEW publication No. (ADM) 80-938 (Washington, D.C.: U.S. Government Printing Office, 1980).
3. Allen, K. E., et al., "Effects of Social Reinforcement on Isolate Behavior of a Nursery School Child," *Child Dev.* 35:310, 1964.
4. Alley S., et al. (eds.), *Paraprofessionals in Mental Health: Theory and Practice* (New York, N.Y.: Human Sciences Press, 1979).
5. American Medical Association, *Physical Distribution and Medical Licensure in the U.S.* (Chicago, Ill.: AMA, 1977).
6. American Psychological Association, *Ethical Principles in the Conduct of Research With Human Participants* (Washington, D.C.: APA, 1973).
7. _____, *Standards for Providers of Psychological Services* (Washington, D.C.: APA, 1977).
8. Aron, W. S., and Daily, D., "Short- and Long-Term Therapeutic Communities: A Follow-Up and Cost-Effectiveness Comparison," *Int. J. Addic.* 9:619, 1974.
9. Attkisson, C. C., et al., "Evaluation: Current Strengths and Future Directions," in *Evaluation of Human Service Programs*, edited by C. C. Attkisson, et al. (New York, N.Y.: Academic Press, 1978).
10. Bandura, A., "On Paradigms and Recycled Ideologies," *Cog. Theory & Res.* 2:79, 1978.
11. _____, *Principles of Behavior Modification* (New York, N.Y.: Holt, Rinehart and Winston, 1969.)
12. _____, *Social Learning Theory* (Englewood Cliffs, N.J.: Prentice-Hall, 1977).
13. _____, et al., "Relative Effectiveness of Desensitization and Modeling Approaches for Inducing Behavioral, Affective, and Attitudinal Changes," *J. Pers. Soc. Psychol.* 13:173, 1969.
14. Barnhart, G., "Social Design and Operations Research," *Pub. Health Rep.* 85:247, 1979.
15. Beck, A. T., *Diagnosis and Management of Depression* (Philadelphia, Pa.: University of Pennsylvania Press, 1973).
16. Beck, N., "Cost-Benefit and Cost-Effectiveness Analysis in Psychotherapy Outcome Research," manuscript submitted for publication, University of Missouri, 1979.
17. Bergin, A. E., "The Effects of Psychotherapy: Negative Results Revisited," *J. Coun. Psychol.* 10:244, 1963.
18. _____, "An Empirical Analysis of Therapeutic Issues," in *Counseling and Psychotherapy: An Overview*, edited by G. Arbuckle (New York, N.Y.: McGraw Hill, 1967).
19. _____, "The Evaluation of Therapeutic Outcomes," in *Handbook of Psychotherapy and Behavior Change*, edited by A. E. Bergin and S. L. Garfield (New York, N.Y.: Wiley, 1971).
20. _____, "Some Implications of Psychotherapy Research of Therapeutic Practice," *J. Abn. Psychol.* 71:235, 1966.
21. _____, and Lambert, M. J., "The Evaluation of Therapeutic Outcomes," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and A. E. Bergin (New York, N.Y.: Wiley, 1978).
22. Binner, P. R., et al., "Patients, Programs, and Results in a Comprehensive Mental Health Center," *J. Cons. Clin. Psychol.* 41:148, 1973.
23. Blanchard, E. B., and Epstein, L. H., *A Biofeedback Primer* (Reading, Pa.: Addison-Wesley, 1978).
24. Boudewyns P. A., "Is 'Milieu Therapy' in a Short-Term Inpatient Psychiatric Setting Worth the Money?" *Int. Ment. Health Res. News.* 16:7, 1974.
25. Bowman, M. J., "The Costing of Human Resource Development," in *The Economics of Education*, edited by E. A. Robinson and J. E. Vaizey (New York, N.Y.: St. Martins, 1966).
26. Budman, S. H., et al., "Adult Mental Health Services in a Health Maintenance Organization," *Am. J. Psychi.* 136:392, 1979.
27. Bunker, J. P., et al., *Costs, Risks, and Benefits of Surgery* (New York, N.Y.: Oxford University Press, 1977).
28. Burgess, J., *System Approaches to Public Service* (Teaneck, N.J.: Fairleigh-Dickenson University Press, 1978).
28. Campbell, D. T., and Stanley, J. C., *Experimental and Quasi-Experimental Designs for Research* (Chicago, Ill.: Rand McNally, 1963).
30. Carter, D. E., and Newman, F. L., *A Client-Oriented System of Mental Health Service Delivery and Program Management: A Workbook and Guide*, DHEW publication No. (ADM) 76-307 (Rockville, Md.: National Institute of Mental Health, 1976).
31. Cartwright, D. S., "Patient Self-Report Measures," in *Psychotherapy Change Measures*,

DHEW publication No. (ADM) 74-120, edited by I. E. Waskow and M. B. Parloff (Washington, D.C.: DHEW, 1975).

32. Cassell, W. A., et al., "Comparing Costs of Hospital and Community Care," *Hosp. Comm. Psychi.* 23:197, 1972.
33. Claiborn, W. L., and Kayton, R., "Analysis of Mental Health Service Delivery: Profession, Patient, Treatment," *J. Comm. Psychol.* 2:18, 1974.
34. _____, and Stricker, G., "Professional Standards Organization, Peer Review, and CHAMPUS," *Prof. Psychol.* 631, 1979.
35. _____, and Zaro, J. S., "The Development of a Peer Review System: The APA/CHAMPUS Contract," in *Psychology and National Health Insurance: A Sourcebook*, edited by C. A. Kiesler, et al. (Washington, D.C.: American Psychological Association, 1979).
36. Cochrane, A. L., *Effectiveness and Efficiency: Random Reflections on Health Services* (London: Nuffield Provincial Hospitals Trust, 1972).
37. Cohen, J., and Cohen, P., *Applied Research/ Correlation Analysis for the Behavioral Sciences* (Hillsdale, N.J.: Lawrence Erlbaum Associates, 1975).
38. Cohen, M., and Ewalt, P. L., "An Intensive Program for Severely Retarded Children," *Soc. Casework* 56:337, 1975.
39. Cole, S., et al., "Peer Review and the Support of Science," *Sci. Am.* 237:34, 1977.
40. Conley, R. W., et al., "An Approach to Measuring the Cost of Mental Illness," *Am. J. Psychi.* 124:63, 1967.
41. Cook, T. D., and Campbell, D. T., *Quasi-Experimentation: Design and Analysis Issues for Field Settings* (Chicago, Ill.: Rand McNally, 1979).
42. Cooper, B. S., and Rice, D. P., "The Economic Cost of Illness Revisited," *Soc. Sec. Bull.*, 39(2):21, 1976.
43. Cooper, E. M., *Guidelines for a Minimum Statistical and Accounting System for Community Mental Health Centers*, series C, No. 7 (Rockville, Md.: National Institute of Mental Health, 1977).
44. Cowen, E. L., "Some Problems in Community Program Evaluation Research," *J. Cons. Clin. Psychol.* 46:792, 1978.
45. _____, "Some Problems in Community Program Evaluation Research," *J. Cons. Clin. Psychol.* 46:792, 1978.
46. Craighead, W. E., et al., *Behavior Modification: Principles, Issues, and Applications* (Boston, Mass.: Houghton Mifflin, 1976).
47. Cronbach, L. J., *Designing Evaluations* (Stanford, Calif.: Stanford Evaluation Consortium, 1978).
48. _____, et al., *The Dependability of Behavioral Measurements: Theory of Generalizability for Scores and Profiles* (New York, N.Y.: Wiley, 1972).
49. Crow, W. J., "The Effect of Training on Accuracy and Variability in Interpersonal Perception," *J. Abn. Soc. Psychol.* 55:355, 1957.
50. Cummings, N. A., "The Health Model as Entree to the Human Services Model in Psychotherapy," *Clin. Psychol.* 29:19, 1975.
51. _____, "Prolonged (Ideal) Versus Short-Term (Realistic) Psychotherapy," *Prof. Psychol.* 9:491, 1977.
52. _____, and Follette, W. T., "Brief Psychotherapy and Medical Utilization: An Eight-Year Follow-Up," in *The Professional Psychologist Today: New Developments in Law, Health Insurance, and Health Practice*, edited by H. Dorken and Associates (San Francisco, Calif.: Jossey-Bass, 1976).
53. _____, and Follette, W. T., "Psychiatric Services and Medical Utilization in a Prepaid Health Plan Setting (Pt. 2)," *Med. Care.* 5:31, 1968.
54. Cuplan, R., and Davies, B., "Psychiatric Illness at a Medical and a Surgical Outpatient Clinic," *Comp. Psychi.* 1:228, 1960.
55. Dahlstrom, W. G., and Welsh, G. S., *MMPI Handbook: A Guide to Use in Clinical Practice and Research* (Minneapolis, Minn.: University of Minnesota Press, 1960).
56. Dahms, W. T., et al., "Treatment of Obesity: Cost-Benefit Assessment of Behavioral Therapy, Placebo, and Two Anorectic Drugs," *Am. J. Clin. Nut.* 31:774, 1978.
57. Datel, W. E., and Murphy, J. G., "A Service-Integrating Model for Deinstitutionalization," *Admin. Ment. He.* 3:35, 1975.
58. Dawes, R. M., "The Robust Beauty of Improper Linear Models in Decision Making," *Am. Psychol.* 34:571, 1979.
59. Delaney, J. A., et al., "Crisis Intervention and the Prevention of Institutionalization: An Interrupted Time Series Analysis," *Am. J. Comm. Psychol.* 6:33, 1978.
60. DeLeon, P. H., and VandenBos, G. R., "Political Factors Related to the Coverage of Mental Services in Federal Programs: Implications for

the Reimbursement of Psychotherapy," in *Psychotherapy: From Practice to Research in Policy*, edited by G. R. VandenBos (Beverly Hills, Calif.: Sage Publications, in press).

61. Denker, P. G., "Results of Treatment of Psychoneuroses by the General Practitioners," *N.Y. State J. Med.* 46:2164, 1946.
62. Department of Health, Education, and Welfare, National Health Survey, *Runaway Youth: A Status Report and Summary of Projects* (Washington, D.C.: DHEW, 1976).
63. *Diagnostic and Statistical Manual of Mental Disorders* (3d ed., Washington, D.C.: American Psychiatric Association, 1980).
64. Dörken, H., "CHAMPUS Ten-State Claim Experience for Mental Disorders: Fiscal Year 1975," in *Psychology and National Health Insurance: A Sourcebook*, edited by C. A. Kiesler, et al. (Washington, D.C.: American Psychological Association, 1979).
65. Durlak, J. A., "Comparative Effectiveness of Paraprofessional and Professional Helpers," *Psychol. Bull.* 36:80, 1979.
66. Edwards, A. L., and Cronback, L. J., "Experimental Design for Research in Psychotherapy," *J. Clin. Psychol.* 8:51, 1952.
67. Endicott, J., et al., "The Global Assessment Scale," *Arch. Gen. Psychi.* 33:766, 1976.
68. Epstein, S., "The Stability of Behavior: I. On Predicting Most of the People Much of the Time," *J. Per. Soc. Psychol.* 37:1097, 1979.
69. Eysenck, H. F., *The Effects of Psychotherapy* (New York, N.Y.: International Science Press, 1966).
70. _____, "The Effects of Psychotherapy," in *Handbook of Abnormal Psychology*, edited by H. J. Eysenck (New York, N.Y.: Basic Books Inc., 1961).
71. _____, "The Effects of Psychotherapy," *Int. J. Psychi.* 1:97, 1965.
72. _____, "The Effects of Psychotherapy: An Evaluation," *J. Cons. Psychol.* 16:319, 1952.
73. _____, "An Exercise in Megasilliness," *Am. Psychol.* 33:517, 1978.
74. _____, "Note on 'Factors Influencing the Outcome of Psychotherapy'," *Psychol. Bull.* 78: 403, 1972.
75. Fairweather, G. W., et al., *Community Life for the Mentally Ill: An Alternative to Institutional Care* (Chicago, Ill.: Aldine, 1969.
76. Fein, R., *Economics of Mental Illness* (New York, N.Y.: Basic Books, 1958.
77. Fishman, D. B., *A Cost Effectiveness Methodology for Rational Decision-Making in Mental Health Services*, paper presented at the Meeting of the American Psychological Association, San Francisco, Calif., Aug. 26, 1977.
78. _____, "Development of a Generic Cost-Effectiveness Methodology for Evaluating the Patient Services of a Community Mental Health Center," in *Evaluation in Alcohol, Drug Abuse, and Mental Health Service Programs*, edited by J. Zusman and C. R. Wurster (Lexington, Mass.: D. C. Heath and Co., 1975).
79. Foreyt, J. P., et al., "Benefit-Cost Analysis of a Token Economy," *Prof. Psychol.* 6:26, 1975.
80. Fox, H., "Toward an Understanding of Operations Research Concepts," *Mgt. Serv.* 7:23, 1970.
81. Fox P. D., and Kuldau, J. M., "Expanding the Framework for Mental Health Program Evaluation," *Arch. Gen. Psychi.* 19:538, 1968.
82. Foxx, R. M., and Azrin, N. H., "Dry Pants: A Rapid Method of Toilet Training Children," *Behav. Res. Ther.* 11:435, 1973.
83. Frank, J. D., "Methods of Assessing the Results of Psychotherapy," in *Ciba Foundation Symposium on the Role of Learning in Psychotherapy*, edited by R. Porter (Boston, Mass.: Little Brown and Co., 1968).
84. _____, *Persuasion and Healing* (2d ed., Baltimore, Md.: Johns Hopkins, 1973).
85. _____, "The Present Status of Outcome Studies," *J. Cons. Clin. Psychol.* 47:310, 1979.
86. _____, "Therapeutic Components of Psychotherapy," *J. Nerv. Ment. Dis.* 159:325, 1974.
87. Frankl, V. E., "Basic Concepts of Logotherapy," *Confina Psychiatricax*, 4:99, 1961.
88. Freud, S., *Standard Edition of the Complete Psychological Works of Sigmund Freud*, edited and translated by J. Strachey (vol. 17, London: Hogarth, 1955). (Originally published, 1918.)
89. Gabby, J. I., and Leavitt, A., "Providing Low Cost Therapy to Middle Income Patients," *Comm. Ment. Health J.* 6:210, 1970.
90. Gallo, P. S., Jr., "Meta-Analysis—A Mixed Meta-Phor?" *Am. Psychol.* 33:515, 1978.
91. Garfield, S. L., "Research on Client Variables in Psychotherapy," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and A. E. Bergin (2d ed., New York, N.Y.: Wiley, 1978).
92. _____, and Bergin, A. E. (eds.), *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis* (2d ed., New York, N.Y.: Wiley, 1978).

93. _____, and Kurtz, R., "A Survey of Clinical Psychologists: Characteristics, Activities, and Orientation," *Clin. Psychol.* 28:7, 1974.
94. Gilbert, J. P., et al., "Assessing Social Innovations: An Empirical Basis for Policy," in *Evaluation and Experiment*, edited by Bennett and Lumsdaine (New York, N.Y.: Academic Press, 1975).
95. Ginsberg, G., and Marks, L., "Costs and Benefits of Behavioral Psychotherapy: A Pilot Study of Neurotics Treated by Nurse-Therapists," *Psychol. Med.* 7:685, 1977.
96. Glasgow, R. E., and Rosen, G. M., "Behavioral Bibliotherapy: A Review of Self-Help Behavior Therapy Manuals," *Psychol. Bull.* 85:1, 1978.
97. Glass, G. V., et al., *Design and Analysis of Time-Series Experiments* (Boulder, Colo.: Laboratory of Educational Research Press, 1973).
98. Glass, M. G., and Goldberg, S., "Cost-Benefit Analysis and the Evaluation of Psychiatric Services," *Psychol. Med.* 7:701, 1977.
99. Goldberg, I., et al., "Effect of a Short-Term Outpatient Psychiatric Therapy Benefit on the Utilization of Medical Services in a Prepaid Practice Medical Program," *Med. Care* 8:423, 1970.
100. Goldensohn, S. S., and Fink, R., "Mental Health Services for Medicaid Enrollees in a Prepaid Group Practice Plan," *Am. J. Psychi.* 136: 160, 1979.
101. Goldschmidt, P. G., "A Cost-Effectiveness Model for Evaluating Health Care Programs: Application to Drug Abuse Treatment," *Inquiry* 13:29, 1976.
102. Goodwin, I., and Rosenblum, A., "A Method of Measuring and Comparing Cost in Mental Health Clinics," *Hosp. Comm. Psychi.* 23:47, 1972.
103. Gottfredson, G. D., and Dyer, S. E., "Health Service Providers in Psychology," *Am. Psychi.* 33:314, 1978.
104. Gottman, J. M., and Leiblum, S. R., *How To Do Psychotherapy and How To Evaluate It* (New York, N.Y.: Holt, Rinehart and Winston, 1974).
105. _____, and Markman, H. J., "Experimental Designs in Psychotherapy Research," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and A. E. Bergin (2d ed., New York, N.Y.: Wiley, 1978).
106. Gottschalk, L. A., et al., "Prediction and Evaluation of Outcome in an Emergency Brief Psychotherapy Clinic," *J. Nerv. Ment. Dis.* 144:77, 1967.
107. Grace, W. J., et al., "The Treatment of Ulcerative Colitis: II," *Gastroent.* 26:462, 1954.
108. Green, B. L., et al., "Relationships Among Diverse Relationships of Psychotherapy Outcome," *J. Con. Clin. Psychol.* 43:689, 1975.
109. Green, P. E., and Carmone, F. J., *Multidimensional Scaling and Related Techniques in Marketing Analysis* (Boston, Mass.: Allyn and Bacon, 1970.
110. Gruber, A. R., "The High Cost of Delivering Services," *Soc. Work* 18:33, 1973.
111. Guzzetta, R. A., "Acquisition and Transfer of Empathy by the Parents of Early Adolescents Through Structured Learning Training," *J. Coun. Psychol.* 23:449, 1976.
112. Hall, S. M., et al., "Contingency Management and Information Feedback in Outpatient Heroin Detoxification," *Behav. Ther.* 10:443, 1979.
113. Halpern, J., "Program Evaluation, Systems Theory, and Output Value Analysis: A Benefit/Cost Model," in *Program Evaluation for Mental Health*, edited by R. D. Corusey (New York, N.Y.: Grune and Stratton, 1977).
114. _____, and Binner, J. R., "A Model for an Output Value Analysis of Mental Health Programs," *Admin. Ment. He.* 1:40, 1972.
115. Halpert, H., "Models for the Application of Systems Analysis to the Delivery of Mental Health Services," in *Community Psychology and Community Mental Health*, edited by D. Cooks (San Francisco, Calif.: Holden-Day, 1970).
116. Hargreaves, W. C., et al., *Resource Materials for Community Mental Health Program Evaluation: Part 3—Evaluating Effectiveness of Services*, DHEW publication No. (ADM) 75-222 (Rockville, Md.: National Institute of Mental Health, 1975).
117. Hiebert, S., "Who Benefits From the Program?" in *Evaluation of Behavioral Programs: in Community, Residential, and School Settings*, edited by P. O. Davison, et al. (Champaign, Ill.: Research Press, 1974).
118. Hogan, D. B., *The Regulation of Psychotherapists: A Study in the Philosophy and Practice of Professional Regulations* (vols. I-III, Cambridge, Mass.: Ballinger, 1979).
119. Holden, C., "Senators Hear Case for Psychotherapy," *Science* 201:794, 1978.
120. Hollon, S., and Beck, A. T., "Psychotherapy and Drug Therapy: Comparisons and Combinations," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and A. E. Bergin (2d ed., New York, N.Y.: Wiley, 1978).

121. *Hospital Statistics* (Chicago, Ill.: American Hospital Association, 1979).
122. Hupmans, J. H., *The Implementation of Operations Research* (New York, N.Y.: Wiley, 1970).
123. Imber, S. D., "Patient Direct Self-Report Techniques," in *Psychotherapy Change Measures*, edited by I. E. Waskow and M. B. Parloff, DHEW publication No. (ADM) 74-120 (Washington, D.C.: DHEW 1975).
124. James, L. R., and Jones, A. P., "Organizational Climate: A Review of Theory and Research," *Psychol. Bull.* 81:1096, 1974.
125. Jameson, J., et al., "The Effects of Outpatient Psychiatric Utilization on the Costs of Providing Third-Party Coverage," *Research Series 18*, Blue Cross of Western Pennsylvania, 1976.
126. Jeffrey, D. B., "Treatment Evaluation Issues in Research on Addictive Behaviors," *Addic. Behav.* 1:23, 1975.
127. Jeffrey, R. W., et al., "Behavioral Treatment of Obesity: The State of the Art, 1976," *Behav. Ther.* 9:189, 1978.
128. Joint Commission on Accreditation of Hospitals, Principles for Accreditation of Community Mental Health Service Programs (Chicago, Ill.: JCAH, 1976).
129. Jones, K., and Vischi, T., "Impact of Alcohol, Drug Abuse, and Mental Health Treatment on Medical Care Utilization: Review of the Research Literature," *Med. Care* (suppl.) 17:12, 1979.
130. _____, et al., "Cost and Efficiency in Mental Hospitals," *The Hospital* 57:23, 1961.
131. Jung, C., *Collected Works*, edited by H. Read, et al. (New York, N.Y.: Pantheon, 1953).
132. Karon, B. P., and VandenBos, G. R., "Cost/Benefit Analysis: Psychologist Versus Psychiatrist for Schizophrenics," *Prof. Psychol.* 7:107, 1976.
133. _____, and VandenBos, G. R., "Treatment Costs of Psychotherapy Versus Medication for Schizophrenics," *Prof. Psychol.* 6:293, 1975.
134. Karush, A., et al., "The Response to Psychotherapy in Chronic Ulcerative Colitis. I. Pretreatment Factors," *Psychosom. Med.* 30:225, 1968.
135. Kazdin, A. E., "Evaluating the Generality of Findings in Analogue Therapy Research," *J. Cons. Clin. Psychol.* 46:673, 1978.
136. _____, "Therapy Outcome Questions Requiring Control of Credibility and Treatment-Generated Expectancies," *Behav. Ther.* 10:81, 1979.
137. Kelly, G., *The Psychology of Personal Constructs* (New York, N.Y.: Norton, 1955).
138. Kennecott Cooper Corp., *Insight*, unpublished report (Salt Lake City, Utah: Utah Copper Division, 1975).
139. Kiresuk, T. J., and Lung, S. H., "Goal Attainment Scaling," in *Evaluation of Human Service Programs*, edited by C. C. Attkisson, et al. (New York, N.Y.: Academic Press, 1978).
140. Klasman, H. E., "Application of Cost-Benefit Analysis to Health Systems Technology," *J. Occup. Med.* 16:172, 1974.
141. Klein, D. F., "A Proposed Definition of Mental Illness," in *Critical Issues in Psychiatric Diagnosis*, edited by R. L. Spitzer and D. F. Klein (New York, N.Y.: Raven Press, 1978).
142. Klerman, G. L., et al., "Treatment of Depression by Drugs and Psychotherapy," *Am. J. Psychi.* 131:186, 1974.
143. Knapp, T. J., and Peterson, L. W., "Behavior Management in Medical and Nursing Practice," in *Behavior Modification: Principles, Issues, and Applications*, edited by W. E. Craighead, et al. (Boston, Mass.: Houghton Mifflin, 1976).
144. Kolb, L. C., *Modern Clinical Psychiatry* (Philadelphia, Pa.: Saunders, 1968).
145. _____, *Noyes' Clinical Psychiatry* (7th ed., Philadelphia, Pa.: Saunders, 1968).
146. Krantz, D., et al., *Foundation of Measurement* (vol. 1, New York, N.Y.: Academic Press, 1972).
147. Krapfl, J. E., "Accountability Through Cost-Benefit Analysis," in *Behavior Analysis and Systems Analysis: An Integrative Approach to Mental Health Programs*, edited by D. Harshbarger and R. F. Maley (Kalamazoo, Mich.: Behaviordelia, 1974).
148. Krowinski, W. F., and Fitt, D. X., "Day Treatment vs. Brief Hospitalization: A Controlled Study of Clinical and Cost Effectiveness," *Am. J. Comm. Psychol.*, in press.
149. _____, and Fitt, D. X., "A Model for Evaluating Mental Health Programs: The Functional Baseline System," *Admin. Ment. He.* 6:22, 1978.
150. Krumboltz, J. D., "An Accountability Model for Counselors," *Pers. Guid. J.* 52:639, 1974.
151. Lachenmeyer, C. W., "Experimentation—A Misunderstood Methodology in Psychological and Socio-Psychological Research," *Am. Psychol.* 25:617, 1970.
152. Lalonde, M., *A New Perspective on the Health of Canadians* (Ottawa, Ontario: Government of Canada, 1974).

153. Landis, C., "A Statistical Evaluation of Psychotherapeutic Methods," in *Concepts and Problems of Psychotherapy*, edited by L. E. Hinsie (New York, N.Y.: Columbia, 1937).
154. Lazarus, A., *Behavior Therapy and Beyond* (New York, N.Y.: McGraw Hill, 1972).
155. _____, "Group Therapy of Phobic Disorders by Systematic Desensitization," *J. Abn. Social Psychol.* 63:504, 1961.
156. Levenson, A. J., et al., "Acute Schizophrenia: An Efficacious Outpatient Treatment Approach as an Alternative to Full-Time Hospitalization," *Dist. Nerv. Sys.* 38:242, 1977.
157. Levin, H. M., "Cost-Effectiveness Analysis in Evaluation Research," in *Handbook of Evaluation Research*, edited by M. Guttentag and E. Struening (vol. 2, Beverly Hills, Calif.: Sage Publications, 1975).
158. Levine, D. S., and Willner, S. G., *The Cost of Mental Illness, 1974*, DHEW publication No. (ADM) 76-158 (Rockville, Md.: National Institute of Mental Health, 1976).
159. Liptzin, B., et al., "A Federal View of Mental Health Program Evaluation," *Prof. Psychol.* 8:543, 1977.
160. Luborsky, L., "A Note on Eysenck's Article 'The Effects of Psychotherapy: An Evaluation'," *Bri. J. Psychi.* 45:129, 1954.
161. _____, and Bachrach, H., "Factors Influencing Clinical Judgment of Mental Health," *Arch. Gen. Psychi.* 31:292, 1974.
162. _____, et al., "Comparative Studies of Psychotherapies: Is It True That 'Everybody Has Won and All Must Have Prizes'?" *Arch. Gen. Psychi.* 32:995, 1975.
163. Macklin, R., "The Medical Model in Psychoanalysis and Psychotherapy," *Comp. Psychi.* 14:49, 1973.
164. Mahoney, M. J., *Cognition and Behavior Modification* (Cambridge, Mass.: Ballinger, 1976).
165. _____, "Experimental Methods and Outcome Evaluation," *J. Cons. Clin. Psychol.* 46:660, 1978.
166. _____, "The Self-Management of Covert Behavior: A Case Study," *Behav. Ther.* 2:575, 1971.
167. Maidlow, S. T., and Berman, H., "The Economics of Heroin Treatment," *Am. J. Pub. Health* 62:1397, 1972.
168. Malan, D. H., "The Outcome Problem in Psychotherapy Research: A Historical Review," *Arch. Gen. Psychi.* 29:719, 1973.
169. Marks, I. M., "Empirical Psychotherapeutic Methods," *Psychoth. & Psychosom.* 24:222, 1974.
170. Marston, A. R., et al., "A Correspondence Course Behavioral Program for Weight Reduction," *Obesity/Bariatric Med.* 6:140, 1977.
171. Maslow, A. H., *The Farther Reaches of Human Nature* (New York, N.Y.: Viking, 1971).
172. Mason, P. E., and Stitham, M. D., "The Expensive Dalliance: Assessing the Cost of Patient-Therapist Sex," *Bull. Am. Acad. Psychi. Law* 5:450, 1977.
173. May, P. R., "Cost Efficiency of Treatments for the Schizophrenic Patient," *Am. J. Psychi.* 127:118, 1971.
174. Mazer, M., "Psychiatric Disorders in the General Practices of an Island," *Med. Care* 7:372, 1969.
175. McCaffree, K. M., "The Cost of Mental Health Care Under Changing Treatment Methods," *Am. J. Pub. Health* 56:1013, 1966.
176. McCardell, J. and Murray, E. J., "Nonspecific Factors in Weekend Encounter Groups," *J. Cons. Clin. Psychol.* 42:337,1974.
177. McClean, P. D., and Hakstian, A. R., "Clinical Depression: Comparative Efficacy of Outpatient Treatments," *J. Cons. Clin. Psychol.*, in press.
178. McCord, J., "A Thirty-Year Follow-Up of Treatment Effects," *Am. Psychol.* 33:284, 1978.
179. McGuire, T., *National Health Insurance and Issues and Evidence* (Cambridge, Mass.: Ballinger, forthcoming).
180. Meichenbaum, D., *Cognitive Behavior Modification: An Integrative Approach* (New York, N.Y.: Plenum Press, 1977).
181. Meltzoff, J., and Kornreich, M., *Research in Psychotherapy* (New York, N.Y.: Atherton, 1970).
182. Mendelsohn, F., "Long-Term Psychotherapy Coverage Under National Health Insurance," *Soc. Sec. Bull.* 18:1, 1976.
183. Mills, D. H., et al., "The National Register Survey: The First Comprehensive Study of All Licensed/Certified Psychologists," in *Psychology and National Health Insurance: A Sourcebook*, edited by C. A. Kiesler, et al. (Washington, D.C.: American Psychological Association, 1979).
184. Mintz, J., et al., "Measuring the Outcomes of Psychotherapy: Findings of the Penn Psychotherapy Project," *J. Cons. Clin. Psychol.* 47:319, 1979.
185. Mischel, W., *Introduction to Personality* (2d ed., New York, N.Y.: Holt, Rinehart and Winston, 1976).

186. _____, *Personality and Assessment* (New York: Wiley, 1968).
187. _____, "Toward a Cognitive Social Learning Reconceptualization of Personality," *Psychol. Rev.* 80:252, 1973.
188. Moos, R., *Coping With Physical Illness* (New York, N.Y.: Plenum Press, 1977).
189. Morganstern, K. P., "Cigarette Smoking as a Noxious Stimulus in Self-Managed Aversion Therapy for Compulsive Eating: Technique and Case Illustration," *Behav. Ther.* 5:255, 1974.
190. Morton, R. B., "An Experiment in Brief Psychotherapy," *Psych. Monogr.* 69(386):1, 1955.
191. Mosher, L. R., et al., "Soteria: Evaluation of a Home-Based Treatment for Schizophrenia," *Am. J. Orthopsychi.* 45:455, 1975.
192. Murphy, J. G., and Datel, W. E., "A Cost-Benefit Analysis of Community Versus Institutional Living," *Hosp. Comm. Psychi.* 27:165, 1976.
193. Nagel, S. S., and Neef, M., *Operations Research Methods* (Beverly Hills, Calif.: Sage Publications, 1976).
194. *National Health Insurance Resource Book*, House Committee on Ways and Means (revised edition, Washington, D.C.: U.S. Government Printing Office, 1976).
195. National Institute of Drug Abuse, *Management Effectiveness Measures for NIDA Drug Abuse Treatment Programs, Volume 1: Cost-Benefit Analysis, Volume 2: Costs to Society of Drug Abuse* (Washington, D.C.: NIDA, 1977).
196. National Institute of Mental Health, *Draft Report: The Financing, Utilization, and Quality of Mental Health Care in the United States* (Washington, D.C.: DHEW, Office of Program Development and Analysis, 1976).
197. _____, *Mental Health Statistical Note No. 139*, August 1977.
198. Newman, F. L., and Rinkus, A. J., "Level of Functioning, Clinical Judgment, and Mental Health Services," *Eval. & the Health Prof.* 1:175, 1978.
199. _____, et al., "Program Analysis Using the Client-Oriented Cost Outcome System," *Eval. & Prog. Plng.* 1:19, 1978.
200. Noble, J. H., Jr., "The Limit of Cost-Benefit Analysis as a Guide to Priority-Setting in Rehabilitation," *Eval. Qtrly.* 1:347, 1977.
201. Nunnally, J. C., and Wilson, W. H., "Method and Theory for Developing Measures in Evaluation Research," in *Handbook of Evaluation Research*, edited by E. L. Streuning and M. Guttenberg (vol. 1, Beverly Hills, Calif.: Sage Publications, 1975).
202. Office of Technology Assessment, U.S. Congress, *Assessing the Efficacy and Safety of Medical Technologies*, GPO stock No. 052-003-00593-0 (Washington, D.C.: U.S. Government Printing Office, September 1978).
203. _____, U.S. Congress, *The Implications of Cost-Effectiveness Analysis of Medical Technology*, GPO stock No. 052-003-00765-7 (Washington, D.C.: U.S. Government Printing Office, August 1980).
204. Olbrisch, M. E., "Psychotherapeutic Interventions in Physical Health: Effectiveness and Economic Efficiency," *Am. Psychol.* 32:761, 1977.
205. O'Neil, H. F., et al., "A Systems Analysis of a Campus Community Mental Health Facility: A Preliminary Investigation," *Am. J. Comm. Psychol.* 1:362, 1973.
206. Panzetta, A. F., "Cost-Benefit/Studies in Psychiatry," *Comp. Psychi.* 14:451, 1973.
207. Parloff, M. B., "Can Psychotherapy Research Guide the Policymaker? A Little Knowledge May Be a Dangerous Thing," *Am. Psychol.* 34:296, 1979.
208. _____, et al., "Assessment of Psychosocial Treatment of Mental Health Disorders: Current Status and Prospects," report to the National Academy of Sciences, Institute of Medicine, Washington, D.C., 1978.
209. Patterson, G. R., "Intervention for Boys With Conduct Problems: Multiple Settings, Treatments, and Criteria," *J. Cons. Clin. Psychol.* 42:471, 1974.
210. Payne, F. D., and Wiggins, J. S., "MMPI Profile Types and the Self-Report of Psychiatric Patients," *J. Abn. Psychol.* 79:1, 1972.
211. Perkins, J. A., and Wicas, E., "Group Counseling With Bright Underachievers and Their Mothers," *J. Coun. Psychol.* 18:273, 1971.
212. Perloff, E. and Perloff, R., "Selected Processes for Evaluating Service Delivery Programs: Overview," *Prof. Psychol.* 8:389, 1977.
213. Phillips, E. L., "Achievement Place: Token Reinforcement Procedures in a Home-Style Rehabilitation Setting for 'Pre-Delinquent' Boys," *J. Appl. Behav. Anal.* 1:213, 1968.
214. Piasecki, J. R., et al., *Determining the Costs of Community Residential Services for the Psychosocially Disabled*, DHEW publication No. (ADM) 7-5041 (Rockville, Md.: National Institute of Mental Health, 1977).
215. Pomerleau, O. F., "Behavioral Medicine: The Contributions of the Experimental Analysis of

Behavior to Medical Care," *Am. Psychol.* 34: 654, 1979.

216. Potter, A., et al., "Readmission Discount Factors in Program Evaluation: An Output Value Analysis of an Adult Psychiatric Program," *Am. J. Comm. Psychol.* 3:303, 1975.
217. Powers, E., and Witmer, H., *An Experiment in the Prevention of Delinquency* (New York, N.Y.: Columbia University Press, 1951).
218. Presby, S., "Overly Broad Categories Obscure Important Differences Between Therapies," *Am. Psychol.* 33:514, 1978.
219. President's Commission on Mental Health, *Report to the President*, GPO stock No. 040-000-00390-8 (vol. 1, Washington, D.C.: U.S. Government Printing Office, 1978).
220. Prest, A. R., and Turvey, R., "Cost-Benefit Analysis: A Survey," *Econ. J.* 75:683, 1965.
221. Rachman, S., "Double Standards and Single Standards," *Bull. Brit. Psychol. Soc.* 30:295, 1977.
222. _____, "The Effects of Psychological Treatment," in *Handbook of Abnormal Psychology*, edited by H. Eysenck (New York, N.Y.: Basic Books, 1973).
223. _____, *The Effects of Psychotherapy* (Oxford, England: Pergamon Press, 1971).
224. Rathus, S. A., and Nevid, J. S., *Behavior Therapy: Strategies for Solving Problems in Living* (New York, N.Y.: Signet, 1977).
225. Regier, D. A., et al., "The De Facto U.S. Mental Health Services System," *Arch. Gen. Psychi.* 35:685, 1978.
226. Reiss, B., "Changes in Patient Income Concommitant With Psychotherapy," *J. Cons. Psychol.* 31:130, 1967.
227. Reiss, M. L., et al., "Behavioral Community Psychology: Encouraging Low-Income Parents to Seek Dental Care for Their Children," *J. Appl. Behav. Anal.* 9:387, 1976.
228. Rice, D. P., *Estimating the Cost of Mental Illness*, Health Economics Series No. 5 (Washington, D.C.: DHEW, 1966).
229. Riecken, H. W., "Principal Components of the Evaluation Process," *Prof. Psychol.* 8:392, 1977.
230. _____, and Boruch, R. F. (eds.), *Social Experimentation: A Method for Planning and Evaluating Social Intervention* (New York, N.Y.: Academic Press, 1974).
231. Rivlin, A. M., *Systematic Thinking for Social Action* (Washington, D.C.: The Brookings Institution, 1971).
232. _____, and Timpane, P. M. (eds.), *Ethical and Legal Issues of Social Experimentation* (Washington, D.C.: The Brookings Institution, 1975).
233. Robins, L. N., *Deviant Children Grownup* (Baltimore, Md.: Williams and Wilkins, 1966).
234. Rogers, C. R., *Client-Centered Therapy: Its Current Practice, Implications, and Theory* (Boston, Mass.: Houghton Mifflin, 1951).
235. _____, "Client Oriented Psychotherapy," in *Comprehensive Textbook of Psychiatry*, edited by A. M. Freedman, et al. (vol. 1, 2d ed., Baltimore, Md.: Wilkins and Wilkins, 1975).
236. _____, *On Personal Power: Inner Strength and Its Revolutionary Impact* (New York, N.Y.: Delacorte, 1977).
237. Romans, J. T., "The Economic Evaluation of Mental Health Programs," *Int. J. Ment. Health* 2:38, 1973.
238. Rosen, J. C., and Wiens, A. N., "Changes in Medical Problems and Use of Medical Services Following Psychological Intervention," *Am. Psychol.* 34:420, 1979.
239. Rosenthal, R., "Combining Results of Independent Studies," *Psychol. Bull.* 85:185, 1978.
240. _____, *Experimenter Effects in Behavioral Research* (New York, N.Y.: Appleton-Century-Crofts, 1966).
241. _____, "The 'Filedrawer Problem,' and Tolerance for Null Results," *Psychol. Bull.* 86:638, 1979.
242. Rosenzweig, S., "A Transvaluation of Psychotherapy—A Reply to Hans Eysenck," *J. Abn. Soc. Psychol.* 49:298, 1954.
243. Rubenstein, J. S., et al., "The Parent-Therapist Program: Alternative Care for Emotionally Disturbed Children," *Am. J. Orthopsychi.* 48:654, 1978.
244. Rufener, B. L., et al., *Management Effectiveness Measures for NIDA Drug Abuse Treatment Programs, Volume 1: Cost Benefit Analysis*, GPO stock No. 017-024-00577-1 (Washington, D.C.: National Institute of Drug Abuse, 1977).
245. _____, et al., *Management Effectiveness Measures for NIDA Drug Abuse Treatment Programs, Volume 2: Costs to Society of Drug Abuse*, GPO stock No. 017-024-00578-9 (Washington, D.C.: National Institute of Drug Abuse, 1977).
246. Rush, A. J., et al., "Comparative Efficacy of Cognitive Therapy and Pharmacotherapy in the Treatment of Depressed Outpatients," *Cog. Ther. Res.* 1:17, 1977.
247. Rutledge, L., and Binner, P. R., "Readmissions to a Community Mental Health Center," *Comm. Ment. Health J.* 6:136, 1970.

248. Salsbery, D. L., *Accounting Guidelines for Community Mental Health Centers and Related Facilities*, DHEW publication No. (HMS) 73-9068 (Rockville, Md.: National Institute of Mental Health, 1972).
249. Saxe, L., and Fine, M., *Social Experiments: Methods for Design and Evaluation* (Beverly Hills, Calif.: Sage Publications, forthcoming).
250. Scheff, T. J., *Being Mentally Ill: A Sociological Theory* (Chicago, Ill.: Adeline, 1966).
251. Schelling, T. C., "The Life You Save May Be Your Own," in *Problems in Public Expenditures*, edited by S. B. Chase, Jr. (Washington, D.C.: The Brookings Institution, 1968).
252. Schulberg, H. C., "Issues in the Evaluation of Community Mental Health Programs," *Prof. Psychol.* 8:560, 1977.
253. _____, "Quality-of-Care Standards and Professional Norms," *Am. J. Psychol.* 133:1047, 1976.
254. Seres, J. L., and Newman, R. I., "Results of Treatment of Chronic Low-Back Pain at the Portland Pain Center," *J. Neuro.* 45:32, 1976.
255. Shanteau, J., and Phelps, R. H., "Judgment and Swine: Approaches and Issues in Applied Judgment Analysis," in *Human Judgment and Decision Processes: Applications in Problem Settings*, edited by M. F. Caplan and S. Schwartz (New York, N.Y.: Academic Press, 1977).
256. Shapiro, A. K., and Morris, L. A., "The Placebo Effect in Medical and Psychological Therapies," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and D. E. Bergin (2d ed., New York, N.Y.: Wiley, 1978).
257. Shapiro, D., and Shapiro, D., "The 'Double Standard' in Evaluation of Psychotherapies," *Bull. Brit. Psychol. Soc.* 30:209, 1977.
258. Sharfstein, S. S., "Third-Party Payers: To Pay or Not To Pay," *Am. J. Psychi.* 135:1185, 1978.
259. _____, and Nafziger, J. C., "Community Care: Costs and Benefits for a Chronic Patient," *Hosp. Comm. Psychi.* 27:170, 1976.
260. Shephard, R. N., et al. (eds.), *Multidimensional Scaling: Theory and Application in the Behavioral Sciences* (vols. 1 and 2, New York, N.Y.: Academic Press, 1972).
261. Siegert, F., and Yates, B. T., "Behavioral-Child Management: A Comparison of Individual In-Office, Individual In-Home, and Group Delivery Systems," *Eval. & the Health Prof.* 3:123, 1980.
262. Sirotnik, K. A., and Bailey, R. C., "A Cost-Benefit Analysis for a Multimodality Heroin Treatment Project," *Int. J. Addict.* 10:443, 1975.
263. Skinner, B. F., *About Behaviorism* (New York, N.Y.: Knopf, 1974).
264. _____, *Beyond Freedom and Dignity* (New York, N.Y.: Knopf, 1971).
265. _____, *Science and Human Behavior* (New York, N.Y.: MacMillan, 1953).
266. Sloane, R. B., et al., *Psychotherapy Versus Behavior Therapy* (Cambridge, Mass.: Harvard University Press, 1975).
267. Smith, M. L., and Glass, G. V., "Meta-Analysis of Psychotherapy Outcome Studies," *Am. Psychol.* 32:752, 1977.
268. _____, et al., *The Benefits of Psychotherapy* (Baltimore, Md.: Johns Hopkins University Press, in press).
269. Sobel, S. B., "Throwing the Baby Out With the Bathwater: The Hazards of Follow-Up Research," *Am. Psychol.* 33:290, 1978.
270. Sorenson, J. E., and Grove, H. D., "Using Cost-Outcome and Cost-Effectiveness Analyses for Improved Program Management and Accountability," in *Evaluation of Human Service Program*, edited by C. C. Attkisson, et al. (New York, N.Y.: Academic Press, 1978).
271. _____, and Phipps, D. W., "Cost-Finding: A Tool for Managing Your Community Mental Health Center," *Admin. Ment. He.* 1:68, 1972.
272. _____, and Phipps, D. W., *Cost-Finding and Rate-Setting for Community Mental Health Centers*, DHEW publication No. (ADM) 76-291 (Rockville, Md.: National Institute of Mental Health, 1975).
273. Stern, B. E., and Stern, E. S., "Efficiency of Mental Hospitals," *Brit. J. Prev. & Soc. Med.* 17:111, 1963.
274. Strupp, H. H., "Psychotherapy Research and Practice: An Overview," in *Handbook of Psychotherapy and Behavior Change: An Empirical Analysis*, edited by S. L. Garfield and A. E. Bergin (2d ed., New York, N.Y.: Wiley, 1978).
275. _____, "Success and Failure in Time-Limited Psychotherapy," *Arch. Gen. Psychi.* 37:595, 1980.
276. _____, and Bergin, A. E., *A Bibliography of Research in Psychotherapy* (Washington, D.C.: NIMH, 1969).
277. _____, and Hadley, S. W., "A Tripartite Model of Mental Health and Therapeutic Outcomes," *Am. Psychol.* 32:187, 1977.
278. _____, et al., *Psychotherapy for Better or Worse: The Problem of Negative Effects* (New York, N.Y.: Jason Aronson, 1977).
279. Stuart, R. B., *Trick or Treatment: How and*

When Psychotherapy Fails (Champaign, Ill.: Research Press, 1970).

280. Subotnik, K. L. "Spontaneous Remission: Fact or Artifact," *Psychol. Bull.* 77:32, 1972.
281. Tennov, D., *Psychotherapy: The Hazardous Cure* (Garden City, N.Y.: Anchor Press, Doubleday, 1976).
282. Tharp, R. G., and Wetzel, R. J., *Behavior Modification in the Natural Environment* (New York, N.Y.: Academic Press, 1969).
283. Thomas, J. A., *The Productive School: A Systems Analysis Approach to Educational Administration* (New York, N.Y.: Wiley, 1971).
284. Thoresen, K. E., et al., "Learning House: Helping Troubled Children and Their Parents Help Themselves," in *Progress in Behavior Therapy With Delinquents*, edited by J. S. Stumphauzer (Springfield, Ill.: Thomas, 1979).
285. Ullmann, L. P., and Gurel, L., "Validity of Symptom Ratings From Psychiatric Records," *Arch. Gen. Psychi.* 7:130, 1962.
286. United States Bureau of the Census, *Characteristics of American Children and Youth, 1976* (Washington, D.C.: U.S. Department of Commerce, Bureau of the Census, 1978).
287. VandenBos, G. R., and Pinos, C. D., "Research on the Outcome of Psychotherapy," in *Psychotherapy: From Practice to Research in Policy*, edited by G. R. VandenBos (Beverly Hills, Calif.: Sage Publications, in press).
288. Vorster, D., "Psychotherapy and the Results of Psychotherapy," *S. Afr. Med. J.* 40:934, 1966.
289. Wadsworth, W. V., et al., "Cost of Treatment of Affective Disorders: A Comparison of Three Hospitals," *Lancet* 273:533, 1957.
290. Walder, L. O., et al., "Teaching Behavioral Principles to Parents of Disturbed Children," in *Psychotherapeutic Agents: New Roles for Non-Professionals, Parents, and Teachers*, edited by B. G. Guerney (New York, N.Y.: Holt, Rinehart and Winston, 1969).
291. Wallace, J., and Sechrest, L., "Frequency Hypothesis and Content Analysis of Projective Techniques," *J. Cons. Psychol.* 27:387, 1963.
292. Washburn, S., et al., "A Controlled Comparison of Psychiatric Day Treatment and Inpatient Hospitalization," *J. Cons. Clin. Psychol.* 44:665, 1976.
293. Waskow, I. E., and Parloff, M. B. (eds.), *Psychotherapy Change Measures*, DHEW publication No. (ADM) 74-120 (Washington, D.C.: DHEW, 1975).
294. Watson, D. L., and Tharp, R. G., *Self-Directed Behavior: Self-Modification for Personal Adjustment* (Belmont, Calif.: Brooks/Cole, 1972).
295. Watts, C. A., et al., "Cost-Effectiveness Analysis: Some Problems of Implementation," *Med. Care* 17:430, 1979.
296. Weisbrod, B. A., *A Guide to Benefit-Cost Analysis, as Seen Through a Controlled Experiment in Treating the Mentally Ill*, discussion paper 559-79 (Madison, Wis.: Institute for Research on Poverty, University of Wisconsin, 1979).
297. _____, et al., "An Alternative to the Mental Hospital—Benefits and Costs," paper presented at the meeting of the American Psychiatric Association, Miami Beach, Fla., April 1976.
298. Weiss, C. H., *Evaluation Research: Methods of Assessing Program Effectiveness* (Englewood Cliffs, N.J.: Prentice-Hall, 1972).
299. Williams, R. L., and Long, J. D., *Toward a Self-Managed Life Style* (2d ed., Boston, Mass.: Houghton Mifflin, 1979).
300. Wolberg, L. R., *The Technique of Psychotherapy* (New York, N.Y.: Grune and Stratton, 1977).
301. Wolins, M., *A Manual for Cost Analysis in Institutions for Children* (New York, N.Y.: Child Welfare League of America, 1962).
302. Wolpe, J., *Psychotherapy by Reciprocal Inhibition* (Stanford, Calif.: Stanford University Press, 1958).
303. Wortman, P. M., "Evaluation Research: A Psychological Perspective," *Am. Psychol.* 30:562, 1975.
304. Yates, B. T., "Benefits and Costs of Community-Academia Interaction in a Paraprofessional Training Course," *Teach. Psychol.* 7:8, 1980.
305. _____, *Improving Effectiveness and Reducing Costs in Mental Health* (Springfield, Ill.: Thomas, 1980).
306. _____, "Improving the Cost-Effectiveness of Obesity Programs: Three Basic Strategies for Reducing the Cost per Pound," *Int. J. Obes.* 2:249, 1978.
307. _____, and Newman, F., "Approaches to Cost Effectiveness Analysis and Cost Benefit Analysis in Psychotherapy," in *Psychotherapy: From Practice to Research in Policy*, edited by G. R. VandenBos (Beverly Hills, Calif.: Sage Publications, in press).
308. _____, et al., "Toward More Cost-Effective Delivery Systems in Behavioral Medicine: Self Management Institute's Obesity, Insomnia, and Smoking Divisions," in *Behavior Group Therapy, 1981: An Annual Review*, edited by D. Upper and S. M. Ross (Champaign, Ill.: Research Press, in press).
309. Young, F. W., "Nonmetric Multidimensional

Scaling: Recovery of Metric Information," *Psychometrika*. 35:455, 1970.

310. Zifferblatt, S. M., "Analysis and Design of Counselor-Training Systems: An Operant and Operations Research Perspective," *Coun. Psychol.* 3:12, 1972.

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